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ABSTRACT

Summative evaluation data from nine of the fifteen Home Start sites is presented. The purposes of this pilot summative evaluation were to assess the Fall 1972 measurement battery and field data collection procedures, to identify entering population characteristics so minimum useable sample sizes could be computed for the Fall 1973 data collection and, to determine preliminary relationships between children's performance and different aspects of their home environment. Data quality is discussed and item analyses and factor scores on nine instruments used in the measurement battery are presented along with recommended changes in the measurement battery for the final summative evaluation. See also ED 069 439--069 441. (ROF)

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Home Start Evaluation Study

interim report II:

Summative Evaluation Results

Fall 1972

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THE NATIONAL HOME START EVALUATION
INTERIM REPORT II: SUMMATIVE EVALUATION RESULTS

July 30, 1973

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INTRODUCTION

Purpose of Summative Report

The data presented in this report were collected in nine[1] of the 15[2] Home Start sites in operation in the Fall of 1972. The data come from the pilot phase of the summative component of a three-component evaluation. The major task of the pilot summative evaluation is to try out the measurement battery so necessary modifications can be completed before beginning the actual evaluation in Fall, 1973. Another purpose is to develop a capable field staff for gathering the data.

Specifically, this section of the report and the supporting statistical analyses undertake three tasks:

- To assess the Fall 1972 measurement battery and field data collection procedures;
- To identify entering population characteristics so minimum, useable sample sizes can be computed for the Fall 1973 data collection;
- To determine preliminary relationships between children's performance and different aspects of their home environment, interpreted broadly.

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[1] Huntsville, Alabama; Dardanelle, Arkansas; Wichita, Kansas; Gloucester, Massachusetts; Binghamton, New York; Cleveland, Ohio; Houston, Texas; Millville, Utah; Parkersburg, West Virginia.

[2] San Diego, California has recently been added to the National Home Start Project, bringing the current site total to 16.

Since the main thrust of this report is to examine the basic psychometric properties of the Fall 1972 measures, the only between-site comparisons presented here are those that relate to procedures for gathering the data. The statistical tables presented are mainly descriptive; inferential statistical tests were not conducted at this stage. Outcomes of this phase of analysis will be verified by comparing them with data from the Spring 1973 pilot replication.

Fall 1972 Pilot Summative Evaluation

The Fall 1972 summative design and procedures are summarized in this section, including the experimental design, family selection, measurement battery, data collection, data reduction and statistical analysis. Further information can be found in the National Home Start Evaluation: First Interim Report (High/Scope Educational Research Foundation and Abt Associates, Inc., 1972). Section II of the First Interim Report presents the rationale for the selection of the measures used in the Fall 1973 data collection. A detailed description of the Fall 1972 field data collection operations is presented in Appendix D.

Basic design. The actual evaluation, beginning in Fall 1973, is designed to include a randomly assigned, delayed entry control group. However, for the purpose of trying out the measurement battery a control group was not necessary, and only those families enrolled in the Home Start Program were included in the current data collection.

A pre- and post-measurement design was adopted, and all available families from the current data collection will also be included in the Spring 1973 summative evaluation. Only newly recruited families will be included in the Fall 1973 data collection, so the current families will not participate in that assessment even though many of them will still be enrolled in the program.

Family selection. A representative selection of Home Start families was desired, so a random selection process was used insofar as possible. The family was selected as the sampling unit, and all focal children and certain siblings were administered the measures. Only children aged three to six years were included, and in the case of multiple siblings in a single family, preference was given to the older sibling in order to adequately test the ceilings of the child tests. When families had more than one focal child, all received the child measures. About half of the focal children were to be three-year-olds, and the other half to be four-year-olds, following the family enrollment policy used by local programs at the direction of OCD. If it was known that a focal child was handicapped or non-English-speaking, that family was omitted from consideration.

Nine of the 15 sites were selected for the pilot evaluation by joint agreement of the evaluators and staff from the Office of Child Development. Decisions about sites to be included were based on judgments about their representativeness as well as on certain practical considerations. A nonrandom procedure was adopted at this stage because there were compelling reasons for not including certain sites, including site startup delays, cultural incompatibility of the measures, family migration, and geographic isolation.

Twenty families were randomly selected from each site, using regions within the sites as strata, for a total sample size of 180 families. Twenty additional families from each site were designated as alternates to be included in the event any of the first twenty were not available. Final decisions to include alternates in place of regular families were made by the program directors in each site and reasons for the change were noted.

Random selection of all families was conducted by the evaluation staff in Ypsilanti, Michigan. Rosters listing each family enrolled in the nine sites in September 1972 were submitted to the evaluators by program directors, and the families in each site were assigned random numbers within regions in the site. Regions were counties, cities, or sections of cities, depending on the geographic composition of each site. Regions were represented in the final sample according to the overall proportion of families in a site from that region. A list of regular and alternate families for each region was prepared by the evaluators and mailed back to program directors, who used it to contact the families for permission to administer the measures. The letter used to obtain parents' permission is presented in Appendix A, along with initial and final roster forms used in the selection of families. The names of all families who agreed to participate in the evaluation were obtained from the program directors by the community interviewers.

Measurement battery. Eleven measures were used in the Fall 1972 data collection, including three children's tests, two child rating scales completed by adults, three parent questionnaires, a parent-child interaction measure, child height and weight, and a medical laboratory test for trace elements in the child. Each of these measures is described briefly in the section on instrument characteristics below. Detailed information, with appropriate references to the measurement literature, is presented in the First Interim Report (1972) cited above. The relationships of the various measures to program objectives are presented in Figure 1, adapted from the first interim report.

Data collection. Data collection was underway in all nine sites by the third week in October, 1972, and an attempt was made to finish all data collection within six weeks of the starting date for each site. The last data from the last site did not arrive at the High/Scope Foundation for processing until early January, 1973, but all other sites were finshed in December. It was not possible to include the few pieces of data collected after mid-December in the current analysis.

Applicants for the job of community interviewer were selected from local residents in each of the nine Home Start communities and recommended to the evaluation team by the local Home Start director. Applicants so hired were flown to Michigan for a week of intensive training in the procedures for administering the various measures. Staff from the evaluation team accompanied each community interviewer on her first family visit and observed the accuracy of procedures, taking corrective action for any problems after leaving the home. Assignment of families to interviewers was accomplished by joint agreement of the project director and interviewers in each site, using the random lists provided by the evaluators. A comprehensive set of forms for recording problems and costs were filled out by each community interviewer. Also, continual telephone contact was maintained by Abt Associates with each of them to answer questions that arose in the field and to correct problems discovered after the data arrived in Cambridge. As soon as the data were screened for completeness by staff at Abt Associates, they were forwarded to High/Scope Foundation staff for processing.

Data reduction. The data were reduced to machine readable form by the High/Scope Foundation data processing staff, following a series of fixed steps. Site, family, and child identification numbers were assigned to each piece of data that arrived from Abt Associates, and a log of all received materials was maintained. Formats for entering each item from each test, rating scale, or questionnaire were developed and recorded in a coding manual. In order to improve the efficiency of coding operations

FIGURE 1: MATRIX OF OBJECTIVES AND MEASURES[1]

Objectives	Measures										
	1 Height & Weight	2 Nutrition Status	3 Food Intake	4 Parent Interview	5 8-Block Task	6 Home Environment	7 PSI	8 Enumeration	9 DDST	10 Schaefer	11 POCL
Health											
Normal Growth	X										
Nutrition											
Balanced diet		X	X								
Psych-Soc. Services											
Awareness and use				X							
Education, Families											
Better "educators"					X						
Parenting skills				X	X						
Educational environment						X					
Education, Child											
Cognitive school readiness							X				
Number concepts								X			
Language					X				X		
Personal-Social social behavior									X		
Task orientation										X	X
Extraversion										X	X
Tolerance										X	
Motor, Gross, and Fine									X		

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[1] Updated from the first interim report (1972)

a 250-character record length was adopted, necessitating direct on-line entry of data into the computer files. Remote terminals maintained by the High/Scope Foundation and linked to an IBM 360/67 computer at the University of Michigan were used for this purpose. Software available on the Michigan Terminal System or developed by High/Scope Foundation staff was used for data entry. Once data were entered on the Home Start master file they were verified for correctness against the original protocals according to one of two procedures: family and child identification fields and certain child tests were verified 100%, while all other measures were spot verified according to a random procedure. The error rate found by this random verification procedure is presented in Table 1. Partial verification procedures were adopted because of the limited turnaround time available, and the need to speed up processing. Error rates were considered low enough (less than .5%) so that it was not necessary to verify all data, although every error found in the random verification was corrected.

A final stage of processing, not yet completed, is to record all protocals on microfilm for permanent storage as backup to the computer files maintained on disks and tapes.

Statistical analysis. Analysis of the data contained in the computer files involved two broad stages. The first consisted of building working files compatible with available statistical programs, and the second consisted of actually computing each of the various descriptive statistics needed for tables in this report. The first task was by far the more involved and time consuming of the two.

In the process of building working files, all items from all measures had to be mechanically screened for wild punches, misplaced columns, missing data, short records, and various other problems that commonly occur in machine data processing. All items which were used in the preliminary analysis were transferred in a corrected form into the master working file. At this stage many items had not been scored "pass" or "fail", nor had subtotals or totals been computed for the various measures. Another file was created to contain the item pass/fail scores, subtotals, and totals, computed from the first file. Decisions at this point were made about how many items had to be present in order to arrive at a valid score for each measure and the data for certain families were recoded as missing when necessary so they would be excluded from the later statistical computations. One of several computer scoring procedures was then used to calculate the scores for valid cases.

TABLE 1

ACCURACY OF DATA PROCESSING

(Actual number of errors based on a random selection of 25% of the total data)

Instrument	Type of Error Coding	Punching
Pupil Observation Checklist	7	6
Schaefer Behavior Inventory	13	1
High/Scope Home Environment Scale	17	23
Weight and Height	9	2
Food Intake	17	2
Parent Interview	8	6
Preschool Inventory	*	11
ETS Enumeration Test	*	5
Denver Developmental Screening Test	*	14
8-Block Sort Tape	**	21
8-Block Sort Task	2	3
Tester Logs	0	15
Total Errors	73	109
Total Number of Keypunches		39,160
Error Rate		.278%

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*All coding errors on these instruments were corrected before the decision to verify was made.

**Reliability of coding 8-Block Tape is reported in Chapter 3.

As soon as data were transferred to the working files the statistical analyses began. Basically three categories of analyses were performed. First, the number of families and children, missing data, conditions of testing, and other information related to data quality were compiled. Second, item analyses were performed for individual measures, such as item response distributions, item percent passing, item intercorrelations, and factor analyses. Third, analyses of whole scores were performed, such as computing means and standard deviations on total scores for various subgroups of the Home Start sample. Correlations between total scores and factor analysis of the entire battery were also performed.

Descriptive statistics were used exclusively in preference to inferential statistical tests, since the main focus was instrument development rather than hypothesis testing. Statistical tests were not performed to identify correlations that differed significantly from zero, because of the dubious value of the test when sample sizes are large. For general reference purposes, a correlation of approximately .15 is significantly different from zero at the .05 level when obtained from data for 180 subjects (the Home Start sample size).

All statistical computations were performed via terminals connected to the IBM 360/67 computer at the University of Michigan. The basic statistical package used for most file manipulations and descriptive statistical calculations was the Michigan Interactive Data Analysis System (MIDAS) developed at the Statistical Research Laboratory of the University of Michigan and documented in MIDAS (Fox and Quire, 1972). Additional programs were used for specialized tasks such as computing ages, screening for certain cases or data codes not possible in MIDAS, test scoring and item analyses, and the various other computer operations that were needed. Most of these programs were written by High/Scope Foundation staff and consultants. All factor analyses were performed using program FACTOR, documented in Veldman (1967). This program computes a principal components analysis with a varimax rotation, and allows for missing data through the use of a missing data intercorrelation subroutine. All factors whose roots exceed the eigenvalue cutoff of 1.0 are presented in the tables of factor loadings, unless reported otherwise.

DATA QUALITY

During preparations for the Fall 1972 summative evaluation, many questions arose about possible field problems, such as high family turnover, high parent refusal rate, high missing data rate, impossible home testing conditions, excessive time needed to collect all the data in a site, excessive time needed to administer individual measures, or recruitment and turnover problems among the community interviewers. Any one of these problems could seriously limit the generalizability of the findings, and some, if severe enough, could prevent data from being collected at all. Members of the evaluation team were not aware of any similar large-scale evaluations conducted in homes across the country that had any data on the incidence of these problems, so it became a matter of high priority to obtain rough figures for a preliminary assessment of their magnitude. The tables in this section all relate to this need, and consist mainly of tallies of the different problems encountered by test, by site, or overall.

Data relating to the following issues of concern are presented in this section:

- Fidelity to the randomized family lists;
- Incidence of missing data;
- Conditions of testing in the home;
- Battery administration time;
- Data collection start and finish times.

Where clear recommendations for future data collections can be formulated, they are presented within the respective sections.

Fidelity to random family lists. In order to permit generalization of findings to the entire Home Start population, the list of families selected according to the stratified random procedure must be strictly adhered to. When other families are substituted for the ones originally selected, even if the substitutes are themselves randomly selected, as in this data collection, the generalizability of findings is reduced. This happens because such results only apply to a subset of the total population of families--those similar to the families who remained in the evaluation. It often happens that families presenting the most difficulty for data collection are the most important to the sample because of their uniqueness. An important step in the pilot phase was an examination of how many families were substituted for the original families, and why. Table 2 presents the number of families dropped from the lists in each site, and the total across sites, along with the reasons given by the program directors.

Examination of the totals suggests a disturbingly high substitution rate. In three sites half or more of the 20 families were substitutes, and in five more sites about one-third of the families were substitutes. Only one site could be considered as having a high correspondence to the originally selected families (Arkansas, with just three substitutions).

Reasons given for the substitutions were varied. The most common reason given was termination of the family from the local program. This represents not so much of a sampling problem as it does a program delivery problem. If a family leaves the program, the Home Start population of interest to the evaluators changes, and the family is no longer relevent to the evaluation. However, the family may be very much in need of services but is no longer obtaining them. Thirty-nine terminations out of a total of 360 regulars and alternates indicates that almost 11% of the Home Start enrollees left the program in a period of just over two months. This may be due to the fact that many programs were barely underway, but if it is shown to be consistent in future data collections there would seem to be cause for concern about how much impact the program can be expected to have with such a transient enrollment.

The next most frequent reason given for families dropped was "family difficulties", which included illness, the mother's employment, and family problems of various kinds. To some extent this seems to reflect scheduling problems between the community interviewer and the family; for example, some families might have been maintained in the sample if more of the interviews had been scheduled for evenings, or if the evaluation schedule had permitted interviews to be postponed until after persons recovered from illnesses.

Only about 2% of the families refused to take part in the evaluation. This indicated a strong willingness to assist in the evaluation of the program even though it was explained

TABLE 2

FAMILIES THAT WERE DROPPED FROM LISTS

Site	Families dropped from lists[1]			Reasons Dropped								
	Regu-lar	Alter-nate	TOTAL	Family terminated program	Family could not be reached	Parent Refused Permission	Family Diffi-culties	Child Handi-capped	Child non-English Speaking	Site Error	Miscellan-eous reasons	No reason given
Huntsville, Alabama	6	5	11	9	0	0	1	0	0	1	0	0
Dardanelle, Arkansas	3	1	4	0	0	0	4	0	0	0	0	0
Wichita, Kansas	10	3	13	6	1	0	5	1	0	0	0	0
Gloucester, Massachusetts	7	12	19	3	0	3	5	0	4	4	0	0
Binghamton, New York	8	4	12	2	0	1	6	1	0	0	2	0
Cleveland, Ohio	11	5	16	7	0	2	2	0	0	0	4	1
Houston, Texas	11	9	20	4	0	0	2	0	3	0	3	8
Millville, Utah	7	7	14	5	0	1	1	1	0	3	2	1
Parkersburg, West Virginia	8	3	11	3	0	1	2	1	0	3	0	1
TOTAL	71	49	120	39	1	8	28[2]	4	7	11	11	11

[1] Originally 20 regulars and 20 alternates were selected from each site.

[2] Breakdown of family difficulties:

Illness	8
Family problems	6
Mother working	12
Other	2

in the letter of permission that the benefits of their involvement would primarily be to future families enrolling in Home Start.

Eleven percent of the families either had handicapped children or were non-English-speaking, and should have been excluded from the sample before the random selection was conducted. More explicit instructions to program staff preparing the site rosters will help screen such families before interviewers attempt to schedule them.

Thirty-three percent of the families were dropped due to errors at the site, miscellaneous reasons, or unexplained reasons. One of the site errors that commonly occurred was to replace an unavailable regular family with the same numbered alternate, thus skipping alternates instead of taking them in order. A large part of this problem can be eliminated by streamlining the namelists and providing clearer instructions. Investigation of the miscellaneous reasons may suggest other specific improvements that can be made to the namelists sent to sites. Attention will be devoted to getting the reasons for all families dropped in the spring collection, hopefully eliminating the "no reason given" category.

To summarize the comparison of original lists with final lists, there were important deviations that could bias the findings in the remainder of the report in unspecified ways. However, for most of the test development purposes of this report, it is unlikely that the biases will have any effects of practical importance. Several recommendations for improving the correspondence in the Spring 1973 collection can be made:

- Improve the family information obtained before the random selection is performed.

- Make format changes in the namelists to simplify interpretation by the site staff, and include more thorough instructions.

- Attempt to set up more flexible schedules for the community interviewers so families can be interviewed in the evenings, or rescheduled following illnesses.

Selected family characteristics. Certain basic statistical information about families in the sample is useful for verifying the representativeness of the sample obtained by the random selection procedure and for determining limitations that must be observed when analyzing the measurement battery. A summary of relevant information from Table 3 follows.

TABLE 3

DEMOGRAPHIC CHARACTERISTICS

Site	Number of Families	FOCAL CHILDREN									SIBLINGS (3-6 years)												Total of focal & Sibs (3 - 6)	Average number of focal & sibs per family (3 - 6)
		Number of Children	Ages (years)[1]						Sex		Number of Siblings	Birthdate not Available	Ages (years)[1]								Sex			
			3	3½	4	4½	5	5½	M	F			3	3½	4	4½	5	5½	6	6½	M	F		
Huntsville, Alabama	20	20	0	0	2	4	6	8	7	13	6	0	1	1	1	2	1	0	0	0	4	2	26	1.30
Dardanelle, Arkansas	20	21	0	0	3	1	10	7	12	9	5	0	1	1	2	1	0	0	0	0	3	2	26	1.30
Wichita, Kansas	20	20	0	4	10	0	6	0	9	11	3	0	0	0	0	0	1	1	1	0	3	0	23	1.15
Gloucester, Massachusetts	20	21	3	6	6	3	2	1	11	10	6	1	0	0	0	0	0	2	3	0	1	5	27	1.35
Binghamton, New York	20	21	5	5	7	1	3	0	12	9	2	0	0	0	0	0	1	1	0	0	1	1	23	1.15
Cleveland, Ohio	20	20	7	3	5	2	3	0	12	8	2	1	0	0	0	1	0	0	0	0	2	0	22	1.10
Houston, Texas	20	23	4	4	5	4	5	1	10	13	7	0	1	0	1	0	3	0	1	1	1	6	30	1.50
Millville, Utah	20	20	3	4	7	2	4	0	11	9	6	1	0	0	0	0	3	1	1	0	4	2	26	1.30
Parkersburg, West Virginia	20	20	2	6	6	3	3	0	11	9	11	1	0	1	0	2	3	3	1	0	4	7	31	1.55
TOTAL	180	186	24	32	51	20	42	17	95	91	48	4	3	3	4	6	12	8	7	1	23	25	234	1.30

[1] Intervals include 2 months before and 3 months after indicated date, e.g., the three-year-old category includes children from 34 months to 39 months, etc.

The 180 families selected for the Fall 1972 evaluation had 186 focal children and 48 siblings in the age range from three to six, for an average of 1.3 children per family. This average is somewhat below the actual figure for that age range since not all siblings in the range were included. The overall totals for boys and girls is 95 and 91, or 51% and 49% respectively. These are very close to the ratios for the Home Start population as reported in the Family Characteristics Report, i.e., 49% boys, 48% girls and 3% unknown. Since the children were not deliberately selected according to sex, the figures tend to suggest that random selection was adequately realized on at least one child characteristic.

The distribution of ages for focal children shows that the entire range from three to six is reasonably evenly distributed for the total sample, although there are distinct differences among sites. Alabama and Arkansas have no three or three-and-a-half year-old children, whereas they have far more five and five-and-a-half year-old children than the other sites. This distinct difference between sites would seem to be due to an external influence such as the presence or absence of compulsory kindergarten and the related recruiting policies in each site. While the finding is not very important in itself, it places important restrictions on the kinds of comparisons that can be made among sites. Direct comparisons of the means from child tests for each site would be meaningless, for example, because the sites with older children would be expected to achieve higher means simply because older children generally perform at a higher level than younger children. No comparisons are made in this report among individual sites using measurement battery scores. The child/age differences among sites will not restrict the comparisons of interest in the actual evaluation beginning in Fall 1973, because each site will then have its own local control group to equalize effects due to age.

Because of the major influence age typically has on the performance levels of young children, means for the various measures are presented in this report within age groups as well as for the total sample.

Assignment of interviewers to focal children. In all sites but one there were two or three community interviewers to share data collection tasks. Since interviewers at each site were assigned to children through the local program staff, it seemed useful to review the final assignments that were worked out. Table 4 presents the number of focal

TABLE 4

ASSIGNMENT OF COMMUNITY INTERVIEWERS TO FOCAL CHILDREN BY SITE

Site	Number of focal children per site	Number of Interviewers	Interviewer 1 number (%)	Interviewer 2 number (%)	Interviewer 3 number (%)
Huntsville, Alabama	20	2	10 (50)	10 (50)	--
Dardanelle, Arkansas	21	2	10 (47)	11 (52)	--
Wichita, Kansas	20	3	4 (20)	11 (55)	5 (25)
Gloucester, Massachusetts	21	3	7 (33)	9 (42)	5 (23)
Binghamton, New York	21	2	10 (47)	11 (52)	--
Cleveland, Ohio	20	2	10 (50)	10 (50)	--
Houston, Texas	23	2	14 (60)	9 (39)	--
Millville, Utah	20	2	11 (55)	9 (45)	--
Parkersburg, West Virginia	20	1	20 (100)	--	--
TOTAL	186	19			--

children assigned to each interviewer by site. Originally the plan was to train two regular interviewers and one alternate who could substitute for the regulars if necessary. At the interviewers' request, however, permission was given for all three interviewers to share the task if they found it mutually agreeable. Table 4 shows that this arrangement was used in two sites. Only one interviewer was available in the West Virginia site, consequently she did all the testing and interviewing for the ten-county site. Children were approximately equally distributed among the interviewers in each site, except for Kansas where one interviewer tested as many children as the other two interviewers combined, and West Virginia had, as previously stated, only one interviewer.

It would be useful to determine if there were any indication that scores of the children varied by interviewer, as might be the case if some interviewers were more successful at establishing rapport with the children than others. It does not seem feasible to attempt such an analysis with this data, however, because each interviewer worked with such a small number of children that the outcomes would show wide fluctuations simply due to sampling error. If two interviewers in a site worked with predominately different-aged children, for example, there would be no way to separate age effects from interviewer effects.

Incidence of missing data. Two of the realities facing researchers conducting large-scale field evaluations with children are missing data and unequal sample sizes. Both of these problems considerably complicate the data analysis, so diligence during the planning and execution of the data collection pays big dividends at the analysis stage. Equal sample sizes can be selected for different groups or sites, but when several measures are given to each person over multiple visits it is inevitable that some data will be all or partially incomplete for many subjects. Such is the case for the current data.

Given the fact that some missing data is inevitable, useful information can be obtained by determining how much data is missing, on which measures, and why. Table 5 presents the number of complete scores, missing scores, and the reasons (as indicated by interviewer comments written on the measurement forms). The comments do not total to the number of missing scores for each measure because interviewers did not always give reasons, or, as sometimes happened, interviewer comments referred to a single missing item within the measure but the total instrument was considered valid and included in the analysis.

TABLE 5

REASONS FOR MISSING DATA

	Number of Completed Instruments	Number of Missing Scores	Tester Comments			
			Child Refusal	Tester Error	Uncontrollable Circumstances	Language Difficulties
Child Measures						
PSI	166	20	14	1	1	0
ETS[1]	133	53	19	0	1	0
DDST[1]	168	18	9	1	2	0
Height & Weight	173	13	4	0	4	0
SBI	186	0	0	4	3	0
POCL[2]	186	0	--	--	--	--
Parent Questionnaire						
H/S HES	185	1	0	30	0	0
Food Intake	186	0	0	3	1	0
Parent Interview	183	3	0	4	2	0
Parent/Child Interaction						
8-Block[2]	175	11	11	--	--	--
TOTAL	1741	119	57	43	14	0

[1] Breakdown by scale scores is reported separately in Tables 6 and 7.

[2] Includes tests not scored for the analysis of whole scores because of insufficient items.

One problem that defied easy solution was formulating the definitions to be used in judging particular scores to be valid. It was often the case that measures had one or two items missing but were otherwise complete. If the criterion for valid scores was all items complete, then many otherwise useable scores would have been discarded, negating the considerable cost and effort that went into obtaining them. On the other hand, if too many items were missing, the scores would no longer be comparable with other scores and it would be impossible to interpret the outcomes. Two general strategies were used to solve this problem. First, for many of the item analyses the data for each item were taken individually because it did not matter to the analysis of some items if others were missing. Second, for computation of whole scores empirical decisions were made individually for each subscore and total about how many missing items could be tolerated. To arrive at these decisions the number of items missed by each person was displayed in summary form so natural divisions in the data could be selected. For most measures it was found that over 85% of the persons either had complete scores for a given measure or were missing only a very few items, and that the remaining 15% showed a considerable increase in the number of items missing.

Table 5 indicates that data were more frequently missing for measures where the child was an active participant than for parent questionnaires. The most conspicuously high rates were from the ETS Enumeration Test, with 28% missing. The PSI, DDST, and the 8-Block had about 10%missing. Where reasons were noted for the missing scores, the most frequent was "child refusal to complete the activities", especially for the ETS Enumeration and the PSI. This may have been due to their high difficulty level, which is suggested by the finding of an increasing number of subscores missing from the first through the last scales on the ETS Enumeration Test (Table 6).

Conditions for testing in the homes. It is important to administer the child tests in as standard a situation as possible for research purposes, and to elicit a child's best performance it is important to allow him to concentrate on the tasks with as few distractions as possible. The home testing aspect of the evaluation did not promise optimum conditions for the test situation regarding either of these requirements. As part of the data collection, testers were asked to complete a log specifying the conditions of testing for each visit. The results of the logs are presented in Table 8. Some of the anticipated problems are clearly indicated: homes were noisy (77% of visits), crowded (average

TABLE 6
ETS ENUMERATION TEST MISSING SCORES BY SCALE

	Counting Subtest	Touching Subtest	Matching Same #	Matching Same Order	Total Missing Whole Scores
Missing	3	13	21	23	
Insufficient Items	7	7	22	9	
Total	10	20	43	32	53

TABLE 7
DENVER DEVELOPMENTAL SCREENING TEST MISSING SCORES BY SCALE

	Gross Motor	Fine Motor	Language	Personal-Social	Total Missing Whole Scores
Missing	1	6	8	4	
Insufficient Items	6	5	3	2	
Total	7	11	11	6	18

TABLE 3

CONDITIONS OF TESTING SUMMARIZED OVER ALL MEASURES COMBINED

	LOG 1	LOG 2	LOGS 3&4	MEAN	PERCENT OF TOTAL
PERCENT OF VISITS WHERE MOTHER WAS PRESENT	87	91	95	91%	
MEAN NUMBER OF PEOPLE IN ROOM	4.5	4.2	3.8	4.1	
PERCENT OF VISITS WHERE HOUSE WAS RATED NOISY	72	72	88	77%	
PERCENT OF VISITS WHERE TESTERS HAD DIFFICULTIES	41	36	23	33%	
FREQUENCY OF TESTING IN EACH LOCATION:					
living room	101	82	64		48
dining room	19	21	15		13
kitchen	39	46	48		26
living & dining room	6	6	3		3
living room & kitchen	12	10	1		6
mixed previous categories & others[1]	8	10	4		4
FREQUENCY OF TESTING DONE ON:					
large table	27	29	35		42
child-size table	7	17	15		18
floor	20	7	5		15
chair	2	3	0		2
large table & child-size table	1	1	0		1
large table & floor	2	6	0		4
child-size table & floor	9	5	1		7
child-size table & bed	0	1	1		1
mixed previous categories & others[2]	10	9	3		10

---

[1] Examples of other categories are bedroom, dining room and bedroom, den and kitchen, etc.

[2] Examples of other categories are couch, chair and couch, porch, etc.

of four people in the room in addition to the mother, tester, and child), and presented special difficulties to the interviewer's work (33% of the visits). The location of the testing varied from home to home, but most often it was conducted in the living room or kitchen. Testing was done on adult-sized tables in most homes, but there was a wide range of other furniture used to provide support for the activities. In general the home situations left a lot to be desired in terms of testing conditions. Reports from community interviewers indicated that mothers and home visitors frequently interferred with the testing by coaxing the child, criticizing the child, correcting the child, and so on. In the spring an attempt will be made to collect more accurate information on the frequency of these problems, but this appears to be one area where little control can be exercised by the evaluation team.

Measurement battery length. The RFP for the Home Start Evaluation specified an upper time limit of one hour for measures administered to the children. Tests were selected with this criterion in mind, and a time check of the child measures shows that the limit was successfully met in most cases. Each interviewer recorded the start and stop times for each measure, not including set-up time or intervals between tests. The mean time taken to administer each measure is presented in Table 9. The times only refer to the actual family involvement, not to the rating scales and tester logs, completed by interviewers after they left the home. Among the child tests the DDST took the longest time (18.09 minutes) to administer, followed by the PSI (15.59 minutes) and the ETS Enumeration Test (11.23 minutes). The actual time needed by the ETS Enumeration would probably be somewhat longer, since few children completed all four of the subtests. The High/Scope HES was the longest questionnaire answered by the parent (13.59 minutes). The child battery typically took about 47 minutes, the parent questionnaires about 37 minutes, and the 8-Block about 10 more minutes. Altogether, then, 94 minutes of actual testing and interviewing time was needed to complete all the measures over three visits to the homes. Additional time, of course, was required for establishing rapport, setting up the materials, and talking to the mother, child and home visitor.

Order of instrument administration. The instruments were scheduled for administration over three visits to each family. The following order was followed, although the community interviewers were permitted to modify the sequence if circumstances made this necessary.

TABLE 9

TESTING TIMES

MEASURE	N	MEAN (MINUTES)	SD	MAXIMUM
Child Measures				
PSI	180	13.59	4.57	30.0
ETS	183	11.23	3.87	28.0
DDST	183	18.08	6.63	40.0
WT/HT	164	3.96	2.08	13.0
CHILD BATTERY TIME (TOTAL OF MEANS)		46.86		
Parent Questionnaires				
SCHAEFER	173	6.66	3.28	25.0
H/S HES	166	13.59	5.15	31.0
FOOD	170	4.79	2.40	20.0
INTERVIEW	166	11.71	5.40	30.0
PARENT QUESTIONNAIRE TIME (TOTAL OF MEANS)		36.75		
Parent/Child Interaction				
8-BLOCK	170	10.40	6.78	68.0
TOTAL BATTERY TIME FOR MOTHER AND CHILD (TOTAL OF MEANS)		94.01		

First visit:
- Schaefer Behavior Inventory
- Food Intake Questionnaire
- Denver Developmental Screening Test

Second visit:
- Preschool Inventory
- ETS Enumeration Test
- Preschool Inventory to sibling aged 3-5
- Weight and Height
- Weight and Height of sibling aged 3-5
- High/Scope Home Environment Scale

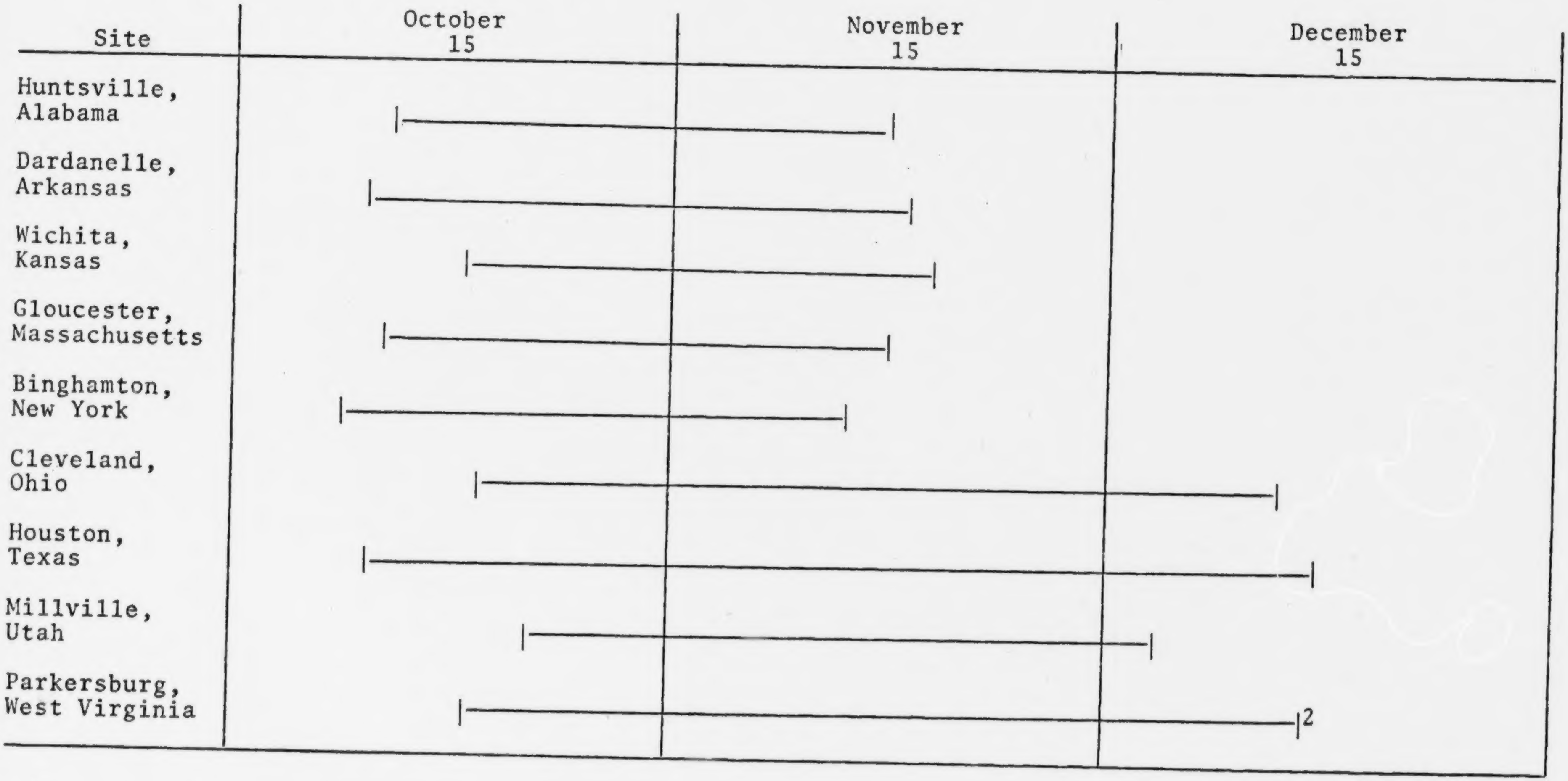
Third visit:
- 8-Block Sort Task
- Home Start Parent Interview

After visits completed:
- Pupil Observation Checklist
- Tester Logs

Testing start and stop times in sites. Table 10 shows when the first and last measures were collected in each site. All testing was underway by the third week in October, and in all sites but Cleveland, Houston and West Virginia, testing was finished in the allotted six week period after it began. West Virginia had only one interviewer, who was hampered by the large 10-county size of the region and by the winter driving conditions that set in during late November.

TABLE 10

STARTING AND ENDING TESTING DATES BY SITE[1]



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[1] Dates that first and last pieces of data were collected.

[2] Some West Virginia data arrived after this time but were too late to be included in the data analysis.

3

INSTRUMENT CHARACTERISTICS

The internal characteristics of each of the individual instruments are examined in the first part of this section. Overall characteristics of the total and subtotal scores are examined in the second part.

The internal characteristics looked at for each instrument include:

- Response distributions across each item;
- Percent of persons passing each item;
- Intercorrelations among items;
- Factor structure among items;
- Internal consistency reliability.

The reason for examining these characteristics is to identify strengths and weaknesses of individual items before combining them into total scores. If faulty items are used to construct a total score, there is good reason to expect the total score to be faulty. An item can be faulty because it fails to discriminate properly among persons, because it yields erratic scores over time, or simply because it is difficult to interpret. Many items identified in this report as having undesirable characteristics will be omitted from future versions of the measurement instruments, while others with less serious problems will be revised and tested again in Spring 1973.

The second part of this section, the analysis of whole scores, presents certain descriptive statistics for each of the total and subtotal scores derived in the first part:

- Means
- Standard deviations
- Standard errors of the means
- Intercorrelations with other scores

. Factor structure of scores examined together

Where possible these descriptive statistics are compared with statistics for families who took part in previous evaluation studies, such as Head Start. When relevant, some of the descriptive statistics are presented separately for different aged children, or for boys and girls.

One of the important characteristics examined using descriptive statistics is the ability range spanned by each measure. Measures must be neither so difficult that all children score at the test "floor", nor so easy that they score at the test "ceiling"; rather, children's scores should be evenly spread over the lower middle range of the measure to insure enough unpassed items remaining to reliably record child growth occurring during the program year. Another important characteristic examined is the interrelationships among different measures; when these relationships are too high there is wasteful duplication among the measures. On the other hand, past studies have found that certain kinds of measures tend to correlate moderately high with each other and contrary results might indicate problems with the measures.

A word of caution regarding the factor analyses may be in order here. The results of factor analyses often fail to be replicated when new data are analyzed; this is particularly true when large numbers of items are factor analyzed using a relatively small number of persons. It is safe to assume, then, that many of the factors identified in the next sections will fail to hold up in the Spring 1973 data. The approach taken throughout the section is to present all the obtained factors for critical discussion, but to indicate factors which obviously fail to hold up logically or empirically. If there was an obvious "next step" an attempt was made to perform it and add it to the report. Interpretations are not completed where the text leaves off, and the insights of readers are welcome.

Item Analysis

Each measure for which item analysis seems appropriate is examined in this section. Excluded are the questionnaires which do not seem to relate to underlying psychological constructs, such as the Parent Interview and the Food Intake questionnaire. Also excluded are such single trait measures as height and weight.

Since the item analysis procedures are slightly different for tests, rating scales, and questionnaires, measures from each of these categories are grouped together in the following order: tests (PSI, ETS Enumeration, DDST); rating scales (SBI, POCL); questionnaires (High/Scope HES, Parent Interview); other (8-Block Task).

The Preschool Inventory (PSI)

The 64-item test developed by the Educational Testing Service was reduced to a 32-item test by the Stanford Research Institute for use in the Planned Variation Head Start evaluation. The 32-item version is the one being used in the Home Start evaluation. The PSI is a general measure of the child's achievement in areas that are often regarded as necessary for success in school. The child is asked questions of general knowledge (e.g., "What does a dentist do?") and basic concepts (e.g., "Put the blue car under the green box.").

Each of the 32 items was scored by the tester according to nine scoring categories--correct, correct with extra information, wrong, wrong with extra information, substitution, refusal, don't know, request aid, and no response. In addition, the tester recorded whether the child's response was verbal or nonverbal. For purposes of item analyses, each item was scored on a pass-fail basis--correct and correct plus extra were combined for the passing scores; all other codes were scored as not passing. This pass-fail scoring will permit comparisons with other reports on the PSI in which only percent passing is reported.

Response distribution. The item response distributions for each of the nine scoring categories and the verbal response category are presented in Table 11. Four of the scoring categories (correct and extra, wrong and extra, substitution, and request aid) were seldom used. Since little information was gained from these categories they will be eliminated in order to simplify the scoring procedure.

Percent passing. The percent of Home Start children passing each item, by age groups, is presented in Table 12. A number of items presented difficulties for the Fall 1972 sample. For items 7, 12, 17, 20-26, 29, and 30, not only did half of the sample or more fail the item, but the percent passing changed little with age. These items undoubtedly contributed to the relatively low correlation (r = .39) between the PSI total score and age.

TABLE 11

PRESCHOOL INVENTORY PERCENT RESPONSES IN EACH SCORING CATEGORY ALL CHILDREN

		Response Category[1]									
Item[2]	N	C	C_e	W	W_e	S	R	DK	A	NR	V
1	177	54.8	18.6	10.2	0.6	1.1	1.7	3.4	0	9.6	90.3
2	180	56.1	1.7	18.9	0	2.2	2.8	7.2	0	11.1	30.5
3	181	50.8	0.6	23.2	0.6	2.2	1.7	8.3	0	12.7	81.2
4	181	42.0	0	25.5	0.6	1.7	2.8	13.3	0	13.3	78.4
5	176	41.5	0	54.5	0.6	0	0.6	0.6	0	2.3	25.5
6	175	28.0	0	69.7	0	0	0.6	0.6	0	1.1	24.0
7	174	10.0	0	81.6	1.1	3.4	0.6	0.6	0.6	1.7	22.4
8	172	52.9	2.9	23.3	2.3	5.2	1.2	4.7	0	7.6	90.1
9	172	32.0	1.2	41.3	1.2	2.3	1.2	7.6	0	13.4	83.7
10	174	23.6	2.9	39.7	4.0	5.2	0.6	11.5	0	12.6	81.6
11	173	38.2	2.9	22.5	1.2	4.6	0.6	17.9	0	12.1	83.2
12	166	25.9	0.6	41.0	2.4	3.6	18.1	0.6	0.6	7.8	79.5
13	168	22.0	1.2	44.6	1.2	4.2	0	17.3	0	9.5	79.1
14	168	56.5	0.6	33.3	0.6	0	1.8	3.6	0	3.6	90.4
15	167	52.7	3.0	30.5	0.6	5.4	0.6	3.6	0	3.6	89.2
16	167	27.5	1.2	58.7	1.2	3.0	0.6	3.0	0	4.8	91.0
17	167	6.0	0	80.2	0.6	0.6	1.8	5.4	0	5.4	86.8
18	164	59.1	2.4	28.7	1.2	3.7	1.2	0.6	0	3.0	92.0
19	164	47.6	0.6	47.6	0	0	1.8	2.4	0	0	25.6
20	164	50.0	0	47.6	0.6	0	0	1.2	0	0.6	15.8
21	164	33.5	0	64.6	0	0	0.6	1.2	0	0	14.0
22	164	26.8	0	71.3	0	0	0.6	0.6	0	0.6	14.0
23	163	47.2	0.6	46.0	1.2	0.6	0	1.2	0	3.1	37.4
24	166	6.0	0	86.7	1.2	3.0	0.6	0.6	0	1.8	39.1
25	165	68.5	0	26.7	0	0.6	2.4	1.8	0	0	27.2
26	164	31.1	0	65.9	0	0	2.4	0	0	0.6	29.2
27	165	20.6	0	75.8	0.6	0	2.4	0	0	0.6	29.0
28	166	57.2	1.2	38.6	0.6	0.6	1.2	0	0	0.6	43.9
29	166	41.0	0	57.2	0	0.6	1.2	0	0	0	33.7
30	165	33.9	0	64.2	0	0.6	1.2	0	0	0	23.0
31	165	61.8	0.6	36.4	0	0	1.2	0	0	0	30.9
32	165	54.5	0.6	43.6	0	0	1.2	0	0	0	23.6

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[1] Code: C=Correct
C_e=Correct with extra
W=Wrong
W_e=Wrong with extra
S=Substitute
R=Refusal
DK=Don't know
A=Requests Aid
NR=No response
V=Verbal

[2] See key to items on page 29.

KEY TO

PRESCHOOL INVENTORY ITEMS

1 What is your first name?

2 Show me your shoulder

3 What is this (knee)?

4 What is this (elbow)?

5 Put the yellow car on the little box.

6 Put the blue car under the green box.

7 Put 2 cars behind the box in the middle.

8 If you were sick, who would you go to?

9 When do we eat breakfast?

10 If you wanted to find a lion where would you look?

11 What does a dentist do?

12 Which way does a phonograph record go?

13 Which way does a ferris wheel go?

14 How many hands do you have?

15 How many wheels does a bicycle have?

16 How many wheels does a car have?

17 How many toes do you have?

18 Which is slower, a car or a bicycle?

19 Point to the middle one.

20 Point to the first one.

21 Point to the last one.

22 Point to the second one.

23 Which of these 2 groups has less checkers in it?

24 Which of these 2 groups has more checkers in it?

KEY TO

PRESCHOOL INVENTORY ITEMS
(continued)

25 Point to the one that is most like a tent.

26 Make one like this (square).

27 Make one like this (triangle).

28 Which one is the color of night?

29 Color the square.

30 Color the square purple.

31 Color the triangle.

32 Color the triangle orange.

TABLE 12

PRESCHOOL INVENTORY: PER CENT PASSING

	Age[1]						
	3	3½	4	4½	5	5½	All Ages
Item Number	N=17-24	N=28-32	N=43-50	N=18-19	N=37-40	N=15-17	N=163-181
1	47	68	67	84	87	93	73
2	37	51	56	73	59	82	58
3	26	40	38	63	70	88	51
4	29	31	36	47	51	70	42
5	18	16	43	36	59	76	42
6	09	12	29	21	38	58	28
7	00	16	14	10	05	11	10
8	20	41	51	73	74	75	56
9	05	19	34	31	45	62	33
10	05	29	27	27	27	41	26
11	15	23	33	63	60	56	41
12	00	34	37	10	28	29	26
13	10	14	30	10	25	41	23
14	33	48	56	63	66	70	57
15	16	44	64	63	61	70	56
16	11	20	39	21	28	41	29
17	05	06	04	10	05	05	06
18	55	53	63	63	65	64	62
19	35	37	52	42	50	70	48
20	52	58	50	26	52	52	50
21	23	24	40	26	39	35	34
22	17	17	29	31	31	29	27
23	55	51	46	52	40	47	48
24	11	00	04	05	07	11	06
25	55	69	65	63	79	70	68
26	00	24	21	39	46	59	31
27	11	13	09	27	28	47	21
28	50	65	52	57	56	76	58
29	44	41	38	26	48	41	41
30	38	27	34	36	38	25	34
31	47	62	54	47	76	82	62
32	41	37	56	57	61	76	55

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[1] Intervals include 2 months before and 4 months after indicated age (e.g., the three-year-old category includes children from 34 months to 39 months, etc.). The N for each item varies because of missing data.

Comparisons of Home Start and other data provide some indication of the appropriateness of the PSI for this population. The studies cited below administered the 64-item PSI; so data from the 32 items that make up the Home Start version have been extracted for comparison purposes.

Table 13 presents an item analysis of the PSI by comparing the percent passing each item in the age ranges reported for the standardization sample (for this table, the Home Start data were regrouped so that the age groups would correspond to those reported by the Educational Testing Service). In some instances the Home Start percent passing is greater than the norm group, in other instances the percent passing is greater for the norm group.

Examination of the differences by age group suggests that at the younger age levels the Home Start sample performed at a higher level than the standardization sample, whereas at the older age levels the reverse is true. Considering norm-Home Start differences of 10 percentage points or more, the following pattern can be seen in the number of differences favoring each group:

Age	Number of items on which Home Start > Norm	Number of items on which Norm > Home Start
3.0 - 3.11	9	3
4.0 - 4.5	7	3
4.6 - 4.11	7	6
5.0 - 5.5	7	6
5.6 - 6.5	6	7

Other comparisons are possible for the older ages. Data from a Head Start evaluation (Miller et al., 1970) are presented in Table 14. These data are from four-year-olds so the Home Start four-year-old group data are presented for comparison. Although there is considerable variation within the four Head Start programs, in general the Home Start sample shows higher percent passing figures. Unfortunately, it is difficult to know how comparable the samples are, even though both sets of data are from fall pre-testings.

The data from the Columbus Schools represent post-test data from a city-wide prekindergarten program that included middle class children as well as Head Start guideline children. Their percent passing figures are generally higher than those for Home Start. Although there are a few items for which the Home Start percent passing is higher even at the younger ages, it does not appear that there will be a problem with a ceiling effect using this instrument.

TABLE 13

PRESCHOOL INVENTORY PERCENT PASSING--COMPARISON WITH THE STANDARDIZATION DATA[1]

	Age Groups									
	3.0-3.11		4.0-4.5		4.6-4.11		5.0-5.5		5.6-6.5	
Item	Norm N=158	Home Start N=73	Norm N=528	Home Start N=44	Norm N=438	Home Start N=34	Norm N=259	Home Start N=15	Norm N=148	Home Start N=14
1	90	62	90	76	91	87	91	93	94	92
2	58	53	65	62	74	58	86	67	79	86
3	49	42	52	43	64	69	80	60	73	93
4	26	34	31	38	40	56	47	36	46	79
5	25	23	32	45	41	48	37	80	36	71
6	27	20	28	19	36	39	39	47	53	57
7	17	13	23	10	34	10	37	0	47	14
8	46	40	55	60	65	71	73	80	73	77
9	29	27	36	27	45	28	54	67	62	69
10	20	23	27	29	30	25	28	27	38	43
11	38	26	41	43	52	59	59	57	62	57
12	41	25	39	30	48	19	59	40	69	29
13	20	20	20	20	26	23	30	33	38	43
14	42	47	50	58	51	61	56	73	57	71
15	42	43	49	62	52	52	66	73	70	79
16	13	27	24	25	34	23	31	47	47	36
17	02	04	03	10	03	0	08	13	11	07
18	42	61	50	51	53	60	64	87	67	64
19	25	42	33	49	44	43	53	53	71	79
20	30	56	33	38	37	50	47	47	43	57
21	15	30	20	33	24	40	33	27	51	43
22	20	20	20	31	21	33	22	27	44	29
23	41	52	44	44	51	37	49	57	45	50
24	04	03	07	08	07	06	12	07	21	14
25	52	71	58	53	60	81	61	73	65	71
26	15	20	21	21	34	45	54	53	68	57
27	10	14	14	13	23	23	34	40	57	50
28	34	58	42	59	49	52	59	67	69	71
29	34	43	45	33	48	42	51	40	60	50
30	25	34	31	28	37	45	52	27	68	31
31	35	56	44	54	50	71	52	73	71	86
32	49	48	52	54	63	61	69	60	82	79

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[1] Educational Testing Service . Preschool Inventory Revised Edition Handbook. Princeton, New Jersey: Educational Testing Service, 1970.

TABLE 14

PRESCHOOL INVENTORY PERCENT PASSING BY ITEM--COMPARISONS WITH OTHER DATA

	Five-year-olds		Four-year-olds					
			Miller et al.[2] Four preschool programs and controls					
Item	Columbus Public Schools[1] N=4710	Home Start 5-year group N=42	1 N=64	2 N=64	3 N=33	4 N=52	C N=34	Home Start 4-year group N=43-50
1	90	87	48	58	48	36	82	67
2	92	59	65	85	52	66	62	56
3	90	70	62	64	61	57	56	38
4	81	51	33	36	36	15	36	36
5	81	59	27	34	21	26	29	43
6	77	38	10	22	18	13	24	29
7	54	05	22	16	21	09	29	14
8	83	74	33	38	52	38	32	51
9	75	45	27	34	33	26	47	34
10	72	27	10	11	18	09	21	27
11	86	60	17	05	36	17	12	33
12	92	28	30	14	21	28	38	37
13	61	25	19	11	15	21	15	30
14	80	66	40	59	30	38	38	56
15	76	61	59	36	42	36	50	64
16	66	28	13	20	33	19	18	39
17	37	05	03	03	03	02	06	04
18	73	65	46	55	45	51	50	63
19	81	50	22	28	33	25	44	52
20	75	52	33	20	24	15	21	50
21	67	39	14	16	21	26	35	40
22	47	31	27	19	24	23	35	29
23	70	40	41	34	48	36	29	46
24	41	07	06	03	12	02	03	04
25	78	79	44	61	36	45	41	65
26	78	18	11	30	15	13	24	21
27	63	28	10	22	12	08	12	09
28	84	56	38	27	39	36	44	52
29	87	48	37	53	27	25	26	38
30	83	38	21	38	18	13	41	34
31	93	76	60	55	18	25	21	54
32	95	61	40	58	39	47	47	56

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[1] Columbus, Ohio Public Schools prekindergarten program. Data supplied by Howard Merriman, Personal Communication.

[2] Miller, L. G. et al. Experimental variation of Head Start curricula: A comparison of current approaches. Progress Report No. 7, Louisville Kentucky: June 1, 1970-October 31, 1970. Columns 1 to 4 are data from four Head Start programs; column 5 is the control group data. The children's age was identified as "prekindergarten". The scores reported are from the fall testing.

Correlations. Table 15 presents the interitem correlations and the correlations of each item with the total test score. The item-total correlations range from .03 (item 22, "point to second checker") to .54 (item 6, "blue car under green box", and 19, "point to middle checker"). The median item-total correlation is .355 (a complete analysis of the total scores is included in the next section of the report, "Analysis of Whole Scores"). Items 17, 18, 22, 23, and 24 show item-total correlations below .20. The intercorrelations of the 32 pass-fail items are generally low--only 24 of the correlation coefficients are above .30.

Factor analysis. Although the PSI is designed to assign only one score to each child, the items of the 64-item inventory have been reported in the PSI Handbook (Preschool Inventory, Revised Edition, 1970), to distribute across four factors: Personal-Social Responsiveness, Associative Vocabulary, Concept Activation-Numerical, and Concept Activitation-Sensory. The factor analysis reported by ETS was not computed on item responses, but rather on "logical units", which were probably the sum of responses on small clusters of items that were very similar with respect to the task required of the child. (Just how these logical units were determined was not reported in the Handbook.)

A factor analysis of the Home Start item responses was conducted with 12 factors being extracted from the 32 items. These factors accounted for 63.9% of the total variance and the items did not distribute according to the factor assignments reported in the Handbook. A second rotation was attempted in which only seven factors were retained. These accounted for 46.3% of the total variance. The factor loadings are presented in Table 16 and the items loading on each factor are listed in Table 17. Again, the items did not appear to load according to the "factors" reported in the Handbook. Factor I, accounting for 9.1% of the variance, included items from each of the four areas described by ETS. However, five of the nine items were from the Concept Activation groups. Half of the items loading on Factor II would be classified by ETS as Associative Vocabulary, but the two items loading highest are from the Personal-Social Responsiveness group. Factor III included only three items; all three are items which do not require the child to make a verbal response and are from the Concept Activation groups. Factor IV had as its two highest loading items the two most difficult questions on the test, "How many toes do you have?" and "Which of these two groups has more checkers in it?". Factor V (accounting for 8.5% of the variance) most closely approximates one of the ETS "factors". The seven highest-loading items are from the Concept Activation groups (two

TABLE 15

PRESCHOOL INVENTORY INTERITEM AND ITEM-TOTAL CORRELATIONS

Items	TOTAL	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	22																																
2	31	15																															
3	49	35	37																														
4	45	14	21	46																													
5	49	23	21	22	30																												
6	54	10	21	30	34	53																											
7	22	01	15	16	12	13	16																										
8	37	25	20	25	26	26	24	17																									
9	40	11	29	38	27	31	21	20	21																								
10	38	12	21	24	20	12	20	09	17	21																							
11	42	12	21	23	26	28	38	10	27	31	22																						
12	36	09	23	09	12	23	19	18	13	18	23	14																					
13	42	04	08	20	30	30	38	13	10	18	14	23	24																				
14	32	21	-08	18	23	32	24	02	15	21	09	28	04	25																			
15	39	17	-02	20	15	23	19	07	23	19	19	29	15	12	48																		
16	46	01	25	13	24	23	28	29	26	21	25	10	29	21	11	23																	
17	16	12	09	-02	00	13	05	08	11	02	06	03	19	-02	-08	12	23																
18	19	01	04	10	14	11	11	-04	10	17	03	06	01	08	12	15	16	15															
19	54	08	17	26	32	27	31	16	13	25	30	19	29	22	19	23	23	00	05														
20	21	-02	09	17	14	20	24	08	01	11	12	04	06	17	04	10	07	10	13	18													
21	23	11	10	21	03	12	16	16	11	07	16	16	17	03	-06	04	03	03	-04	34	-03												
22	03	00	-06	04	-06	02	-05	01	-03	-03	-06	-04	-02	12	02	09	03	19	-09	04	-16	-02											
23	19	15	07	00	26	14	02	09	09	02	-03	-06	07	15	02	11	14	01	00	19	06	07	-04										
24	17	12	01	12	12	16	08	00	00	03	12	08	13	-01	-03	12	06	14	13	21	05	08	01	14									
25	26	06	02	27	08	06	17	02	07	15	14	21	07	12	06	23	14	11	04	06	04	08	11	05	00								
26	38	06	14	25	20	12	13	00	21	11	21	11	13	13	05	07	35	00	08	27	06	04	19	14	00	09							
27	29	17	14	22	18	12	20	06	12	-10	19	02	06	18	07	09	16	05	-03	16	00	01	20	08	00	05	48						
28	36	12	13	13	16	28	15	01	11	09	23	17	21	14	11	02	10	06	05	34	02	17	06	15	05	16	14	12					
29	33	10	09	05	09	11	25	04	09	11	15	21	16	16	14	09	14	00	17	22	10	13	-02	09	04	04	07	13	21				
30	34	10	14	16	11	10	23	15	13	22	05	12	08	13	04	07	26	00	03	23	06	13	01	18	03	10	19	11	19	34			
31	35	09	09	24	11	17	18	01	17	02	13	21	12	24	11	24	13	04	05	22	18	19	01	02	09	06	17	09	17	26	05		
32	53	11	22	29	27	29	33	06	23	29	22	40	20	23	28	16	25	02	10	30	18	21	-04	05	12	15	28	12	16	21	23	28	

TABLE 16

PRESCHOOL INVENTORY ROTATED FACTOR LOADINGS SEVEN FACTORS SPECIFIED

Items[1]	FI	FII	FIII	FIV	FV	FVI	FVII	h^2
1	02	-06	05	11	09	72	10	56
2	-06	65	03	-05	11	26	01	52
3	17	36	15	-16	13	62	-11	63
4	41	29	13	-15	07	39	26	53
5	50	18	00	14	23	24	08	43
6	52	30	06	-05	31	06	-05	48
7	04	52	00	12	03	-02	00	29
8	21	31	11	08	03	40	-05	33
9	34	49	-15	-03	04	26	-14	48
10	05	31	11	09	34	16	-20	31
11	38	17	-08	-06	31	25	-42	53
12	07	36	01	34	37	-05	-02	40
13	51	14	25	-10	23	-10	01	42
14	68	-24	07	-05	04	25	-17	63
15	53	-14	09	35	08	28	-22	57
16	29	52	33	32	07	-10	08	60
17	00	17	07	77	-03	00	-04	63
18	41	06	-11	24	-06	00	16	28
19	18	19	11	04	61	13	13	49
20	39	22	-14	00	10	-15	18	29
21	-25	13	-12	03	61	20	-12	54
22	-08	-18	57	28	00	-01	-22	50
23	10	-01	11	09	14	19	69	57
24	01	-06	-18	43	25	26	26	42
25	13	06	16	18	11	17	-33	23
26	08	21	70	-07	16	08	08	59
27	02	05	74	-06	12	15	09	61
28	02	00	12	06	56	13	08	36
29	25	00	02	-03	55	-13	10	40
30	11	24	15	-09	36	-02	23	29
31	23	-06	09	01	48	04	-13	32
32	36	24	06	-10	40	15	-13	41
PCT.V	09	08	06	05	08	06	04	

Seven factors accounted for 46.3% of the total variance.

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[1] See key to items on page 29.

TABLE 17

PRESCHOOL INVENTORY

Items Loading Highest on Each Factor

		Loading
FACTOR I	(Accounting for 9.1% of the variance)	
14.	How many hands do you have?	.68
15.	How many wheels does a bicycle have?	.53
6.	Put the blue car under the green box.	.52
13.	Which way does a ferris wheel go?	.51
5.	Put the yellow car on the little box.	.50
18.	Which is slower, a car or a bicycle?	.41
4.	What is this (elbow)?	.41
20.	Point to the first one.	.39
32.	Color the triangle orange.	.36*
FACTOR II	(7.5%)	
2.	Show me your shoulder.	.65
7.	Put 2 cars behind the box in the middle.	.52
16.	How many wheels does a car have?	.52
9.	When do we eat breakfast?	.49
12.	Which way does a phonograph record go?	.36*
10.	If you wanted to find a lion, where would you look?	.31*
FACTOR III	(5.9%)	
27.	Make one like this (triangle).	.74
26.	Make one like this (square).	.70
22.	Point to the second one.	.57
FACTOR IV	(4.7%) Difficult items	
17.	How many toes do you have?	.77
24.	Which of these 2 groups has more checkers in it?	.43
12.	Which way does a phonograph record go?	.34*

(continued)

TABLE 17

PRESCHOOL INVENTORY

(continued)

		Loading
FACTOR V (8.5%)		
19.	Point to the middle one.	.61
21.	Point to the last one.	.61
28.	Which one is the color of night?	.56
29.	Color the square.	.55
31.	Color the triangle.	.48
32.	Color the triangle orange.	.40*
30.	Color the square purple.	.36
10.	If you wanted to find a lion where would you look?	.34*
12.	Which way does a phonograph record go?	.34*
FACTOR VI (6.3%) Familiar information		
1.	What is your first name?	.72
3.	What is this (knee)?	.62
8.	If you were sick, who would you go to?	.40
FACTOR VII (4.3%)		
23.	Which of these 2 groups has less checkers in it?	.69
11.	What does a dentist do?	-.42
25.	Point to the one that is most like a tent.	-.33

Seven factors accounted for 46.3% of the total variance from Numerical and five from Sensory). In addition, these seven items required a nonverbal response (pointing or coloring), so Factor V might be called "Concept Activation--Nonverbal". Factor VI, on the other hand, contained items that required a verbal response. These questions also dealt with "familiar" information and were among the easier ones on the PSI. Factor VII accounted for only 4.3% of the variance, and contains three items, two of which load negatively. There is no immediately apparent interpretation for this factor.

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*Item also shows substantial loading on another factor.

Although the factor analysis of the 32-item PSI failed to confirm the four factors identified by ETS, these results are probably not inconsistent with the actual findings of ETS and others. A report of the ETS Longitudinal Head Start study (Shipman, 1971) mentions that "factor analyses did not support use of separate subscores" (p. 215). The report by the Huron Institute on the quality of the Planned Variation Head Start data (Huron Institute, 1972) simply states that "the factor analysis done on the HSPV data revealed the existence of only one factor". The principal components solution originally computed on the Home Start data revealed a first factor that accounted for 18% of the total variance. This, combined with the fact that seven rotated factors accounted for less than 50% of the total variance, suggests that the PSI is tapping essentially one general factor, along with a variety of extraneous factors of lesser importance.

It should be recognized that, with a sample size of 186, 32 items are too numerous to yield stable interitem correlations for factoring. (A standard criterion suggests that there should be a minimum of 10 subjects per item.) The low number of children available for factor analysis computation on the PSI and several of the other measures suggests caution in attempting to make definitive statements about outcomes at this time. Data from the Spring 1973 collection, combined with the current data, will help considerably in establishing replicable findings.

Reliability. Total scores were computed for each subject. The internal consistency reliability (alpha coefficient) for the total score was .83. This compares favorably with the KR-20 of .84 reported for the Head Start data on the 32-item version (Huron Institute, 1972). For the ETS normative sample (64-item version) the alpha coefficients ranged from .88 for three-year-olds to .92 for six-year-olds.

Summary. The Preschool Inventory is a reliable test that shows promise for use in the Home Start evaluation. The majority of the items show an increased percentage passing with increasing age and moderate correlations with the total test score. Although factor analysis yields factors that are difficult to interpret, the results are not inconsistent with the contention that the test includes a relatively homogeneous set of items dealing with general achievement in areas important for success in school. As mentioned previously, the scoring system will be simplified for the Spring 1973 data collection by eliminating the four unused categories.

ETS Enumeration Test (ETS)

The ETS Enumeration Test was designed to measure achievement in the cognitive areas of matching, ordering, and counting. There are four sections in the test, each designed to assess a different mathematical concept. The four are Counting (6 items), Touching (6 items), Matching--Same Number (8 items), and Matching--Same Order (6 items). The test items in each section are preceded by one or more practice items. Only the test items were scored, and each item was scored as a pass or a fail.

Response distribution. The distribution of responses to the Enumeration Test is shown in Table 18. Responses to the Counting scale were coded into categories to accommodate the wide variety of responses children gave when asked to "count the circles" (6 or 9 large dots in a row) and to "tell how many circles there are". The most common error made in counting was to omit one or more circles. A large percentage of the children also counted more circles than were on the page (category I), and several children both omitted and repeated circles in their counting. After counting a set of circles, children were asked to tell the tester how many there were (items 2, 4 and 6). A correct response was the single digit equal to the total number of circles on the page. A very small percentage of the children responded correctly. A number of children gave the wrong number, but were at least consistent with their own counting--category I-S includes all children who responded with the same number that they had counted to on the preceding item, even though it was the wrong number of circles. The number of children responding correctly to items 2, 4, and 6 is increased if children who responded with a sequence of numbers up to the correct total are included (category C-S).

The responses to the Matching scales are suggestive of a response-position bias. Children were more likely to select the correct alternative if it was in position "b" (i.e., directly under the stimulus picture in the Enumeration picture book). The mean percent responding correctly was 33.6%

TABLE 18

ETS ENUMERATION TEST
RESPONSE DISTRIBUTIONS (PERCENT)

Scale	Items	N	C	O	R_e	$O+R_e$	I	R	V	NR
COUNTING										
"Count the circles."	1	178	30.9	22.5	2.8	15.2	18.0	0.6	2.2	7.9
	3	181	19.9	23.8	3.9	19.3	21.0	1.1	3.3	7.7
	5	180	20.6	23.9	3.9	19.4	18.9	2.8	3.3	7.2

Scale	Items	N	C	I-D	I-S	CS	IS	R	V	NR
"Tell me how many."	2	179	20.7	23.5	5.0	8.4	15.1	2.2	15.1	10.1
	4	180	11.1	29.4	14.4	6.1	16.1	2.2	12.2	8.3
	6	174	8.6	26.4	10.3	8.0	20.7	1.7	16.7	7.5

Scale	Items	N	C	O	R_e	$O+R_e$	R	NR
TOUCHING	7	172	69.2	13.4	8.1	6.4	1.7	1.2
	8	172	62.2	17.4	10.5	6.4	1.7	1.7
	9	167	52.1	19.8	18.6	7.2	1.8	0.6
	10	164	48.8	20.1	14.0	14.0	1.2	1.8
	11	166	39.2	19.3	25.9	14.5	0.6	0.6
	12	165	28.5	21.8	30.3	17.0	0.6	1.8

Scale	Items	N	a	b	c	R	NR	Position of Correct Response
MATCHING-SAME NUMBER	13	156	39.1	17.9	41.0	0	1.9	a
	14	151	37.7	40.4	20.5	0.7	0.7	b
	15	149	12.8	62.4	22.8	1.3	0.7	b
	16	153	30.1	38.6	30.1	0.7	0.7	a
	17	152	31.6	20.4	47.4	0.7	0	c
	18	150	16.0	65.3	18.0	0.7	0	b
	19	151	40.4	40.4	17.9	0	1.3	a
	20	152	22.4	57.2	19.1	0.7	0.7	c

Scale	Items	N	a	b	c	R	NR	Position of Correct Response
MATCHING-SAME ORDER	21	158	25.9	41.1	32.3	0	0.6	a
	22	157	19.1	54.1	26.1	0	0.6	b
	23	156	19.2	34.6	44.9	0.6	0.6	c
	24	156	32.7	35.3	32.1	0	0	a
	25	149	23.5	47.0	28.9	0	0.6	b
	26	162	87.7	6.2	6.2	0	0	a

Response Categories[1]

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[1] See key to categories on page 43.

KEY TO

ETS ENUMERATION TEST
RESPONSE DISTRIBUTIONS (PERCENT)

Codes (Items 1,3,5)

C = correct sequence of numbers
O = omission of 1 or more numbers
R_e = repetition of 1 or more numbers
$O+R_e$ = both omissions and repetitions
I = incorrect sequence-counting beyond correct total number
R = Child Refusal
V = Uncodeable verbal response
NR = No Response

Codes (Items 2,4,6)

C = correct total number
I-D = incorrect number and different from number S counted
I-S = incorrect number but same as number S counted
CS = correct sequence through total number
IS = any incorrect sequence of numbers
R = Refusal
V = Uncodeable verbal response
NR = No Response

Codes (Items 7-12)

C = correct (touched each circle just once)
O = one or more circles omitted
R_e = one or more circles repeated
$O+R_e$ = both omissions and repetitions
R = Refusal
NR = No Response

Codes (Items 13-26)

a = alternative in position a selected
b = b selected
c = c selected
R = Refusal
NR = No Response

when the correct response was position "a", 53.6% in position "b" and 37.1% in position "c" (item 26 was excluded in calculating these means since it was very easy and was administered only to provide the child with a successful experience at the end of the test).

Percent passing. The percent of children passing each item in each age group is presented in Table 19. Items on the first two scales show fairly regular progression from low to high percent passing as age increases. Most of the items on the Matching scales do not show this clear relationship with age. In addition, there are a number of instances where the percent passing does not exceed the chance level of performance (33% for these multiple choice items). Ten of the last 14 items have at least one instance where chance performance is not exceeded by one or more age groups. Either these items are poorly constructed (e.g., the incorrect alternative "pulls" too strongly), or the items are simply so difficult for this age range that a child's score represents guessing behavior.

Correlations. The item-scale and interitem correlations are presented in Table 20. The correlations of each item with its scale subtotal show that each item correlates highest with the scale it belongs to. Again, the items on the first two scales follow the expected pattern. The correlations with the subtotals range from .68 to .75 for Counting and from .65 to .72 for Touching; the correlations for the other two scales are much lower. The r's for the Matching--Same Number items with their subtotal range from .19 to .48; r's for the Matching--Same Order items with their subtotal range from .32 to .45.

Factor analysis. It was expected that four factors would emerge, each representing one of the subscores on the test: Counting, Touching, Matching--Same Number, and Matching--Same Order. However, ten factors were extracted, which accounted for 67.4% of the total variance. The factor loadings are presented in Table 21; items loading on each factor are listed in Table 22. Factor I was clearly the Touching subscale. This factor accounted for 11.9% of the total variance and had, as items with highest loadings, the six items scored on the Touching subscale.

Factor III replicated the Counting subscale. This factor accounted for 12.0% of the variance and had as items with highest loadings the six items which are scored on the Counting subscale.

The remaining 14 items were scattered among eight other factors, each apparently representing a considerable amount

TABLE 19
ETS ENUMERATION PER CENT PASSING

Items		Age[1]						
		3	3½	4	4½	5	5½	All Ages
		N=13-22	N=23-32	N=42-50	N=16-19	N=36-42	N=12-17	N=149-18
Counting Subtest								
2-A	count	00	23	36	15	50	35	31
	tell	04	16	14	21	29	47	21
3-A	count	00	19	16	15	23	52	20
	tell	04	06	06	05	14	41	11
4-A	count	00	12	22	21	26	41	21
	tell	00	03	04	10	09	35	09
Touching Subtest								
	6-B	29	51	79	72	82	76	69
	7-B	23	67	69	61	65	64	62
	8-B	26	45	53	52	60	64	52
	9-B	14	41	42	55	64	64	49
	10-B	00	30	31	50	56	56	39
	11-B	06	24	22	35	37	43	28
Matching Same Number								
	13-C	40	46	25	23	47	64	39
	14-C	42	44	45	29	30	57	40
	15-C	33	50	68	68	66	78	62
	16-C	50	37	14	12	44	26	30
	17-C	53	33	37	56	51	78	47
	18-C	50	55	59	75	73	91	65
	19-C	42	24	37	37	44	69	40
	20-C	50	14	20	06	16	15	19
Matching Same Order								
	22-C	14	34	17	33	28	33	26
	23-C	42	53	57	50	53	60	54
	24-C	42	61	37	47	38	53	45
	25-C	15	46	23	23	39	43	33
	26-C	53	47	50	58	33	50	47
	27-C	64	75	89	94	95	100	88

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[1] The N for each item varies because of missing data.

TABLE 20

ETS ENUMERATION TEST INTERITEM, ITEM-SUBTOTAL, AND ITEM-TOTAL CORRELATIONS

		Counting Subtest							Touching Subtest							Matching Same #									Matching Same Order					
	TOT-AL	2-A cnt	2-A tell	3-A cnt	3-A tell	4-A cnt	4-A tell	SUB-TOTAL	6-B	7-B	8-B	9-B	10-B	11-B	SUB-TOTAL	13-C	14-C	15-C	16-C	17-C	18-C	19-C	20-C	SUB-TOTAL	22-C	23-C	24-C	25-C	26-C	27-C
Counting Subtest																														
2-A Count	54																													
2-A Tell	52	41																												
3-A Count	60	48	29																											
3-A Tell	59	33	56	52																										
4-A Count	51	40	24	53	25																									
4-A Tell	61	36	54	34	53	49																								
SUBTOTAL	77	72	69	75	71	68	72																							
Touching Subtest																														
6-B	49	29	08	21	08	31	15	27																						
7-B	51	27	08	25	13	22	19	28	44																					
8-B	54	29	14	34	19	33	21	36	32	37																				
9-B	56	26	12	38	23	35	19	37	39	36	46																			
10-B	54	25	29	23	19	30	31	37	30	42	38	42																		
11-B	43	17	30	29	21	29	26	36	32	21	39	30	36																	
SUBTOTAL	78	37	24	41	25	44	32	38	65	68	71	72	71	61																
Matching Same #																														
13-C	08	02	06	22	14	01	16	15	-02	02	06	09	08	16	10															
14-C	-07	-03	00	13	09	07	15	08	-07	02	07	-12	08	07	04	00														
15-C	09	17	15	19	16	18	23	25	23	16	14	00	11	15	20	00	14													
16-C	-03	03	06	00	01	-04	00	01	-02	-01	04	02	06	17	05	09	-03	-17												
17-C	11	07	18	02	23	02	06	13	06	06	00	00	19	16	13	-03	-13	09	-10											
18-C	16	14	23	18	18	07	12	22	23	06	00	08	02	15	14	10	05	39	-09	14										
19-C	16	10	17	10	22	00	06	16	17	11	-06	09	04	20	13	08	-04	-03	25	10	00									
20-C	-09	-06	-03	-05	01	-05	-10	-06	-11	-19	-02	-12	-21	-05	-16	-01	-12	-25	-08	25	-25	11								
SUBTOTAL	63	17	28	29	36	11	23	29	19	12	11	06	15	36	22	41	27	41	29	44	47	48	19							
Matching Same Order																														
22-C	01	05	07	13	20	02	00	11	02	13	21	11	12	19	20	03	07	04	16	12	-02	13	-13	17						
23-C	-15	00	15	09	04	07	08	10	13	02	07	00	03	08	09	-05	10	33	-04	-03	42	-07	-12	17	-09					
24-C	-14	-08	-02	-05	00	-11	-03	-07	-18	-05	-09	-09	-07	-02	-12	01	09	-09	01	18	-07	-13	18	04	06	-27				
25-C	01	02	-06	00	01	00	00	00	-01	00	01	00	00	11	03	04	-06	14	-01	07	-05	11	06	10	15	-01	-06			
26-C	-06	-05	-05	00	00	00	04	-02	04	-01	03	-03	-10	00	-03	02	21	24	-06	-23	16	01	-13	07	-14	14	-06	-08		
27-C	11	22	07	15	08	15	11	19	19	07	16	21	15	16	22	-02	-03	18	06	-08	04	16	-15	09	13	-06	05	12	03	
SUBTOTAL	49	05	07	10	15	03	08	17	06	08	18	06	04	20	09	00	19	34	00	03	24	07	-10	32	42	32	33	45	41	41

TABLE 21

ETS ENUMERATION ROTATED FACTOR LOADINGS

Item	FI	FII	FIII	FIV	FV	FVI	FVII	FVIII	FIX	FX	h^2
Counting Subtest (N=176)											
2-A count	27	-01	60	-02	-05	-17	-01	-32	-08	07	58
tell	01	-20	76	22	-02	-11	-07	13	06	08	72
3-A count	34	00	61	-09	04	09	05	-13	-08	-31	64
tell	04	-12	76	13	10	00	07	01	13	-13	67
4-A count	42	07	55	-19	-02	09	09	-12	-22	03	61
tell	14	-06	76	-02	-01	12	-05	00	-03	-02	63
Touching Subtest (N=166)											
6-B	66	-30	00	13	-15	-10	12	-23	-10	09	68
7-B	69	-10	04	01	-03	-04	-10	-06	08	05	52
8-B	71	09	17	-08	16	18	01	02	-08	-06	62
9-B	69	06	16	00	-05	-15	-03	-14	-08	-21	61
10-B	64	-03	25	05	10	-07	-23	15	09	08	59
11-B	51	-16	21	33	25	14	08	09	06	-11	56
Matching Same Number (N=143)											
13-C	03	-02	10	08	04	-01	-03	08	04	-90	84
14-C	01	-01	13	-04	09	79	-12	15	13	10	72
15-C	09	-66	17	-19	21	20	-05	-25	-04	06	68
16-C	01	23	01	69	05	01	-29	07	-03	-04	63
17-C	10	-29	15	01	20	-35	36	24	50	15	76
18-C	02	-79	14	00	-13	-03	-12	-01	03	-17	72
19-C	03	-04	11	77	06	-05	28	-21	-05	-01	74
20-C	-12	26	00	02	01	-05	82	16	12	02	80
Matching Same Order (N=154)											
22-C	17	05	06	19	60	01	-28	00	25	00	59
23-C	03	-60	06	-01	00	15	-04	28	-40	10	65
24-C	-10	14	-01	-11	-03	11	05	-09	81	-05	74
25-C	-05	-06	-05	-03	77	-08	22	-20	-20	-07	75
26-C	-03	-28	-08	06	-28	62	08	-25	-10	-12	66
27-C	14	-02	12	12	15	00	-14	-75	08	07	68
PCT.V	11	07	11	05	05	05	05	04	05	04	

Ten factors accounted for 67.4% of the total variance.

TABLE 22

ETS ENUMERATION TEST

Items Loading Highest on Each Factor

		Loading
FACTOR I (11.9%) Touching subtest		
8-B.	Touch each circle just once.	.71
7-B.	Touch each circle just once.	.69
9-B.	Touch each circle just once.	.69
6-B.	Touch each circle just once.	.66
10-B.	Touch each circle just once.	.64
11-B.	Touch each circle just once.	.51
FACTOR II (7.6%) "b" Responses		
18-C.	Put your finger on the picture that has just as many apples as this one.	-.79
15-C.	Put your finger on the picture that has just as many blocks as this one.	-.66
23-C.	Find a picture that shows clothes hanging in just the same way.	-.60
FACTOR III (12.0%) Counting subtest		
2-A(tell).	Now tell me how many circles there are.	.76
3-A(tell).	Now tell me how many circles there are.	.76
4-A(tell).	Now tell me how many circles there are.	.76
3-A(count).	Count these circles out loud.	.61
2-A(count).	Count these circles out loud.	.60
4-A(count).	Count these circles out loud.	.55
FACTOR IV (5.6%) "a" Responses		
19-C.	Put your finger on the picture that has just as many balloons as this one.	.77
16-C.	Put your finger on the picture that has just as many nuts as this one.	.69

(continued)

TABLE 22

ETS ENUMERATION TEST

(continued)

		Loading
FACTOR V (5.2%) "a" Responses		
25-C.	Find the same train coming down the hill.	.77
22-C.	Find a picture of flowers that is just like this one.	.60
FACTOR VI (5.5%) "b" Responses		
14-C.	Put your finger on the picture that has just as many pennies as this one.	.79
26-C.	Find a picture that shows how they would look if you pushed them together.	.62
FACTOR VII (5.0%) Lollipops		
20-C.	Put your finger on the picture that has just as many lollipops as this one.	.82
FACTOR VIII (4.9%) Turtles		
27-C.	Find the picture that is just the same as this one.	-.75
FACTOR IX (5.4%) "c"-Fish		
24-C.	If the fish in the picture go through the tunnel and stay in line, point to the picture that shows how they come out.	.81
17-C.	Put your finger on the picture that has just as many fish as this one.	.50
FACTOR X (4.4%) Birds		
13-C.	Put your finger on the picture that has just as many birds as this one.	-.90

Ten factors accounted for 67.4% of the total variance.

of response bias. Factor II, which accounted for 7.6% of the total variance, had three items which loaded highest. Two of these items came from Matching--Same Number (7 apples, 3 blocks), while the third item came from Matching--Same Order (clothes). The correct respon[illegible] to each of these items was "b", which was the picture shown directly under the test stem.

Factor IV accounted for 5.6% of the total variance, and had as items with highest loadings two from the Matching--Same Number subscale (9 balloons, 5 nuts). The correct response for these two items was "a". Factor V accounted for 5.2% of the total variance and was defined by two items from the Matching--Same Order subscale (trains, flowers), and had as the correct response picture "a".

Factor VI accounted for 5.5% of the total variance. One item each from Matching--Same Number and Matching--Same Order loaded highest on this scale (4 pennies, beads). The correct answer to these two items was "b". Factor VII accounted for 5.0% of the total variance and had only one item loading highest on this factor--7 lollipops from Matching--Same Number. Factor VIII, which accounted for 4.9% of the total variance, was also defined by only one item (matching turtles), which was the last and easiest item of the two matching subscales.

Factor IX accounted for 5.4% of the variance and had two items with high loadings, one from Matching--Same Number (5 fish) and one from Matching--Same Order (fish). The correct response to these items was "c". Factor X accounted for 4.4% of the total variance and was defined by only one item (3 birds), from Matching--Same Number, the first and easiest item of the Matching--Same Number subtest.

From this hodgepodge of eight small factors, there are five factors for which the only common theme seems to be position of the correct response. Factor II is a "b" factor; Factor IV is an "a", Matching--Same Number factor; Factor V is an "a", Matching--Same Order factor; Factor VI is a "b" factor; and Factor IX is a "c"-fish factor!

Reliability. Results consistent with the factor analysis were obtained when the internal consistency of the scales was examined. The first two scales (which factored neatly, as expected) showed good reliabilities (alpha was .80 and .78 for the Counting and Touching scales, respectively), whereas the Matching scales were very unreliable (alpha = .16 and -.07 for the Same Number and Same Order scales).

Summary. These analyses indicate that on the Fall 1972 Home Start sample, the ETS Enumeration Test does not possess the psychometric properties that were expected. Factor analysis shows only two factors that correspond to scales on the test; items from the other two scales load on eight different factors that seem to represent a variety of concepts, but with strong evidence for the biasing influence of response position. The percent passing each item, alpha values for each scale, and the item-scale correlations support the finding of only two useable scales. Without the two matching scales, the ETS test would measure a very narrow range of skills--counting to 6 or 9 and touching dots. Therefore, it is recommended that the ETS Enumeration Test be dropped from the Home Start test battery. However, because some indication of a child's growth in this conceptual area is needed, Piagetian tests of conservation and other concepts will be substituted. These will be selected by High/Scope Foundation staff and included on a pilot basis in the Spring 1973 data collection.

Denver Developmental Screening Test (DDST)

The DDST was developed to evaluate four aspects of a child's developmental status: gross motor, fine motor-adaptive, language, and personal-social development. When used as a developmental screening procedure the number of items "failed" by a child (relative to his age level) in each of the four areas is used to identify children who have developmental delays. Although the DDST was not designed to yield scale scores or a total score, these scores have been derived for the Home Start sample in the same manner as the other tests in order to examine the instrument's suitability as an assessment procedure.

Since the DDST includes items that are applicable for children who range in age from two weeks to six years, items suitable for the Home Start age range had to be selected. This was done by examining the norms published in the DDST Manual and selecting items that would discriminate among children in the three- to six-year-old age range. This resulted in 32 items that ranged in difficulty, according to the norms, from those that 90% of the three-year-olds passed to those that no child in this age group would be expected to pass. A few DDST items falling in this range were not included: "What is your name?" and "Copies square" were not included since they duplicated PSI items; one Language scale item was inadvertently excluded (defines words) and will be included in the revision prepared for the Spring 1973 testing. Two of the test's authors (Dr. William Frankenburg and Mrs. Alma Fandal) have been involved in the process of adapting the test format for the Home Start evaluation and will approve the final revisions before more testing is done.

Response distribution. Each DDST item was scored as pass or fail according to the criteria specified in the DDST Manual. In addition the community interviewers recorded all instances of children refusing to respond or simply not responding. Table 23 presents the percent of the total sample falling in each category. The table also includes the responses to the individual questions on the Language scale items.

Percent passing. The percent passing each item, by age group, is presented in Table 24. Almost every item shows an increase in percent passing as a function of age. There are a few items that show increase in percent passing through the four-and-one-half-year-old group followed by lower percentages for the five- and five-and-one-half-year-olds (e.g., item 17, "understands prepositions", and item 21, "plays interactive games"). Although this may be an artifact due to the small Ns in each age group, it may reflect a characteristic of the sample. In other words, older Home Start children may score lower, relative to the norms, than younger Home Start children. This hypothesis was investigated by estimating the age at which 25%, 50%, 75%, and 90% of the sample passed each item. The procedure used in the DDST Manual to calculate these ages was followed. First, the Home Start data were regrouped to match the age groupings used in the norms. The age range and the Ns for the norms and for the Home Start sample are as follows:

Age Group	Age in Days	Norm N	Home Start N
3	991-1170	42	19
3 1/2	1171-1350	43	30
4	1351-1530	43	53
4 1/2	1531-1710	43	39
5	1711-1980	47	27
6	1981-2340	44	15

The percent passing in each of these age groups was then plotted and a smooth curve fitted to the data points. From the curve, the age at which 25%, 50%, 75%, and 90% of the children passed was interpolated. The results of this procedure and the comparable normative ages are presented in Table 25.

TABLE 23

DENVER DEVELOPMENTAL SCREENING TEST RESPONSE DISTRIBUTION
(percent of all children)

Scale	Item	N	Response Category			
			Pass	Fail	Refuse	No Response
GROSS MOTOR	1. Balance- 1 sec.	183	84.7	2.2	8.2	4.9
	Balance- 5 sec.	183	28.4	59.0	8.2	4.4
	Balance-10 sec.	184	12.0	72.8	9.2	6.0
	2. Jump in place	185	83.2	3.2	5.4	8.1
	3. Paper jump	185	79.5	11.9	3.2	5.4
	4. Hops	185	59.5	23.8	9.2	7.6
	5. Heel-to-toe	184	21.7	57.1	13.6	7.6
	6. Catches ball	181	29.8	67.4	2.8	0
	7. Backward walk	178	15.2	64.6	12.9	7.3
FINE MOTOR	8. Vertical lines	179	72.1	25.1	2.2	0.6
	9. Dumps raisin-demo.	179	97.8	2.2	0	0
	Dumps raisin-spon.	155	95.5	4.5	0	0
	10. Imitates bridge	179	75.4	23.5	0	1.1
	10a. Builds tower	179	90.5	8.9	0	0.6
	11. Picks longer line	177	45.2	49.7	2.3	2.8
	12. Copies circle	177	62.1	36.7	1.1	0
	13. Copies cross	177	58.8	40.7	0.6	0
	14. Draws boy or girl-3	176	53.4	44.9	1.1	0.6
	Draws boy or girl-6	176	20.5	77.8	1.1	0.6
LANGUAGE	15. Plurals	177	81.4	11.9	0	6.8
	16. Tired	177	49.7	32.8	1.1	16.4
	Cold	177	55.1	33.3	1.1	12.4
	Hungry	177	71.8	15.8	2.3	10.2
	17. On	177	93.2	5.1	1.1	0.6
	Under	177	85.9	12.4	0.6	1.1
	In front of	177	61.0	36.2	1.7	1.1
	Behind	177	67.8	27.7	2.3	2.3
	18. Red	177	66.7	31.1	1.1	1.1
	Blue	177	57.6	39.5	1.7	1.1
	Green	176	64.2	33.0	1.1	1.7
	Yellow	177	63.3	34.5	1.1	1.1
	19. Fire	175	54.9	26.9	0	18.3
	Mother	173	22.0	54.9	1.7	21.4
	Horse	171	52.6	28.1	1.2	18.1
	20. Spoon	173	15.6	74.0	1.2	9.2
	Shoe	176	11.4	73.9	2.3	12.5
	Door	176	29.0	58.5	1.1	11.4

PERSONAL-SOCIAL

Item	N	Yes	No	Sometimes
21. Interactive games	181	86.2	13.3	33.3

Item	N	Cries	Doesn't Mind
22. Separates from mother	180	66.7	33.3

Item	N	Yes	No
23. Washes and dries	180	97.2	2.8
24. Puts on clothing	182	97.8	2.2
25. Buttons buttons	180	71.7	28.3
27. Dresses with supervision	181	75.0	26.0
28. Dresses without supervision	182	77.5	22.5

TABLE 24

DENVER DEVELOPMENTAL SCREENING TEST PERCENT PASSING

	Age[1]						
Item[2]	3	3½	4	4½	5	5½	All Ages
	N=17-23	N=29-32	N=43-51	N=19-20	N=35-42	N=11-17	N=155-185
Gross Motor							
1 (1)	57	78	88	95	90	100	85
1 (5)	09	06	29	26	37	77	28
1 (10)	00	06	16	11	10	35	12
2	61	81	90	80	83	100	83
3	39	72	86	95	86	94	80
4	13	41	63	75	74	94	60
5	09	13	16	25	29	53	22
6	14	13	24	35	44	59	30
7	00	16	18	10	10	41	15
Fine Motor							
8	47	68	65	90	78	94	72
9 (s)	95	100	98	100	95	100	98
9 (d)	89	97	95	95	97	100	96
10	40	61	78	80	90	94	75
10 (a)	84	90	90	95	90	94	91
11	16	32	53	55	49	59	45
12	26	48	63	80	71	82	62
13	16	48	61	70	71	77	59
14 (3)	06	39	53	70	63	88	53
14 (6)	06	10	20	25	27	35	21
Language							
15	61	74	80	95	85	94	81
16	22	48	64	75	66	77	60
17	61	68	74	80	76	71	72
18	39	36	55	45	59	65	51
19	17	38	38	63	59	73	46
20	06	03	12	16	26	47	17
Personal-Social							
21	77	94	86	90	83	88	86
22	59	70	70	55	66	77	67
23	81	100	98	100	100	100	99
24	91	97	98	100	100	100	98
25	43	65	77	75	83	77	72
25 & 27	43	65	75	75	85	77	71
28	46	61	84	90	88	88	78

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[1] The N for each item varies because of missing data.

[2] See key to items on page 55.

KEY TO

DENVER DEVELOPMENTAL SCREENING TEST ITEMS

Gross Motor Items

1(1) = Balance on 1 foot 1 second
1(5) = Balance on 1 foot 5 seconds
1(10) = Balance on 1 foot 10 seconds
2 = Jumps in place
3 = Broad jump
4 = Hops on 1 foot
5 = Heel-to-toe walk
6 = Catches bounced ball
7 = Backward heel-to-toe

Fine Motor Items

8 = Imitates vertical line
9(s) = Dumps raisin from bottle-spontaneously
9(d) = Dumps raisin from bottle-demonstrated
10 = Imitates bridge
10(a) = Tower of 8 cubes
11 = Picks longer line
12 = Copies circle
13 = Copies cross
14(3) = Draws man-3 parts
14(6) = Draws man-6 parts

Language Items

15 = Uses plurals
16 = Comprehends cold, tired, hungry
17 = Comprehends prepositions
18 = Recognizes colors
19 = Opposite analogies
20 = Composition of --

Personal-Social Items

21 = Plays interactive games
22 = Separates from mother easily
23 = Washes and dries hands
24 = Puts on clothing
25 = Buttons up
25&27 = Dresses with supervision
28 = Dresses without supervision

TABLE 25

AGE IN YEARS WHEN GIVEN PERCENT OF POPULATION PASS ITEMS-DDST NORMS[1] AND HOME START DATA

	Estimated Age							
	25%		50%		75%		90%	
Scale	Norm	HS	Norm	HS	Norm	HS	Norm	HS
GROSS MOTOR								
Balance- 1 sec	1.8	*	2.5	*	3.0	3.7	3.2	4.3
Balance- 5 sec	2.6	4.2	3.2	5.1	3.9	5.7	4.3	5.9
Balance-10 sec	3.0	5.3	4.5	*	5.0	*	5.9	*
Jump in place	1.7	*	1.9	*	2.5	3.5	3.0	4.9
Broad jump	2.0	*	2.8	3.1	3.0	3.7	3.2	4.6
Hop	3.0	3.2	3.4	3.8	4.0	4.7	4.9	5.4
Heel-to-toe walk	3.3	4.7	3.6	5.3	4.2	*	5.0	*
Catches ball	3.5	4.2	3.9	5.1	4.9	*	5.5	*
Backward heel-to-toe	3.9	5.2	4.7	5.6	5.6	*	6.3	*
FINE MOTOR								
Imitates line	1.5	*	1.8	2.7	2.2	4.4	3.0	5.4
Dumps raisin-spont.	1.1	*	1.1	*	1.4	*	2.0	*
Dumps raisin-demo.	1.1	*	1.2	*	2.1	*	3.0	2.8
Imitates bridge	2.3	*	2.7	3.3	3.1	4.0	3.4	5.0
Tower 8 cubes	1.8	*	2.0	*	2.4	*	3.4	3.8
Picks longer line	2.6	3.2	2.9	4.4	3.4	*	4.4	*
Copies circle	2.2	3.1	2.6	3.6	2.9	4.7	3.3	5.9
Copies cross	2.9	3.1	3.4	3.7	3.8	5.0	4.4	*
Draws man-3	3.3	3.4	4.0	4.1	4.7	5.1	5.2	5.8
Draws man-6	4.6	4.7	4.8	*	5.4	*	6.0	*
LANGUAGE								
Plurals	1.7	*	2.3	*	2.8	3.8	3.2	5.0
Cold, tired, hungry	2.6	*	2.9	3.8	3.5	5.2	4.1	*
Prepositions	2.7	*	3.1	*	3.4	4.2	4.5	*
Colors	2.7	2.7	3.0	4.2	3.7	*	4.9	*
Opposites	2.9	3.3	3.2	4.3	4.8	5.7	5.3	*
Composition of	3.9	4.8	4.9	5.4	5.7	*	6.3	*
PERSONAL-SOCIAL								
Interactive games	1.7	*	2.0	*	3.0	*	3.5	5.4
Separates from mother	1.9	*	3.0	*	3.5	5.9	4.7	*
Wash and dry hands	1.6	*	1.9	*	2.5	*	3.2	3.2
Puts on clothing	1.7	*	1.9	*	2.6	*	3.0	3.0
Buttons up	2.6	2.9	3.0	3.3	3.7	4.1	4.2	*
Dresses with supervision	2.2	2.9	2.7	3.3	3.1	4.1	3.5	*
Dresses without supervision	2.6	*	3.6	3.3	4.1	3.8	5.0	4.5

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[1] Frankenburg, W. K., Dodds, J. B., and Fandal, A. W. Denver Developmental Screening Test Manual, Revised. Denver: University of Colorado Medical Center, 1970, (Appendix B1).

*Age falls beyond the Home Start age range.

The most obvious outcome of this comparison is the consistently older ages for the Home Start sample. On the average, the Home Start sample lags .86 years behind the standardization sample in the Gross Motor area, .91 years in the Fine Motor area, .93 years in Language, and .50 years in the Personal-Social. It is also apparent, however, that this lag is greater for the older children. The mean age at which 90% of the sample passes an item is 1.06 years for all items; at the 25% point, the mean difference between the standardization and the Home Start sample is .34 years.

Other studies using the DDST with low-income children have also found performance to lag behind the Denver norms (Sandler, Jamison, Deliser, Cohn, Emkey and Keith, 1972). In addition, validity studies completed in Denver (Frankenburg, Camp and Van Natta, 1971) have found that the DDST may erroneously classify some normal children as abnormal. In developing a screening device, of course, errors of over-referral are much more acceptible than errors that would result in not identifying children in need of some treatment.

Correlations. The item intercorrelations and the correlations of each item with its scale subtotal and with the whole test total are presented in Table 26. The item-total correlations range from .05 ("separates from mother easily") to .68 ("buttons buttons"), with a median correlation of .395. Of the five correlations below .20, two are on the Fine Motor subscale ("dumps raisin from bottle spontaneously" and "builds tower of eight blocks") and three are on the Personal-Social subscale ("plays interactive games", "separates from mother easily", and "puts on clothing"). It might be noted that the Personal-Social items, in contrast to the other scales, were answered by the mother.

For every scale, items correlate higher with their own scale subtotal than with other subtotals, indicating fairly homogeneous scales. The Language scale shows the highest degree of item-subtotal relationship--rs for these seven items with their subtotal range from .24 to .83 with a median of .38.

Factor analysis. The 32 DDST items were factor analyzed to see whether the items loaded according to the design of the test developers. Eleven factors were extracted by the Varimax rotation that accounted for 64.6% of the total variance. The factor loadings for each item are presented in Table 27 and the items loading on each factor are listed in Table 28. Items from the DDST Gross Motor scale loaded on three different factors. Factors II and IV (accounting for 7.3% and 6.6% of the variance, respectively) seem to separate

TABLE 26

DENVER DEVELOPMENTAL SCREENING TEST INTERITEM, ITEM-SUBTOTAL, AND ITEM-TOTAL CORRELATIONS

ITEMS	TOT-AL	Gross Motor Items 1(1)	1(5)	1(10)	2	3	4	5	6	7	SUB-TOTAL	Fine Motor Items 8	9(s)	9(d)	10	10(2)	11	12	13	14(3)	14(6)	SUB-TOTAL	Language Items 15	16	17	18	19	20	SUB-TOTAL	Personal-Social Items 21	22	23	24	25	25/27	28
Gross Motor																																				
1(1)	40																																			
1(5)	40	26																																		
1(10)	38	15	47																																	
2	43	54	21	16																																
3	28	34	08	06	45																															
4	54	38	32	27	39	31																														
5	39	10	22	25	19	03	32																													
6	26	07	15	13	00	12	22	20																												
7	33	11	17	17	12	07	17	41	19																											
SUBTOTAL	75	54	59	52	57	45	70	56	47	49																										
Fine Motor																																				
8	46	30	12	11	32	16	35	18	24	12	40																									
9(s)	07	05	-06	-05	04	12	03	-01	-06	05	00	00																								
9(d)	25	08	00	-01	00	04	13	11	06	00	08	13	35																							
10	42	21	04	-02	16	19	20	18	23	13	28	37	08	15																						
10(a)	12	00	00	00	08	09	-02	08	12	13	10	14	-06	17																						
11	41	12	16	20	19	14	35	32	08	08	36	32	-01	13	20	-01																				
12	44	22	14	07	16	16	23	24	13	16	33	21	03	20	26	10	24																			
13	61	22	23	20	20	18	34	26	25	03	42	32	02	18	35	07	41	45																		
14(3)	58	25	25	14	17	21	26	28	11	17	40	35	01	16	30	08	28	40	54																	
14(6)	38	18	13	23	11	11	16	19	09	-02	25	21	07	10	14	-02	27	18	33	44																
SUBTOTAL	84	31	23	19	27	25	40	37	24	17	52	61	14	34	57	25	59	61	74	72	53															
Language																																				
15	31	09	04	09	03	05	19	08	21	00	18	06	12	13	05	-10	17	01	22	22	17	20														
16	58	23	12	13	21	15	31	22	19	12	36	23	10	12	19	12	21	33	47	43	27	47	30													
17	39	20	04	08	05	04	19	15	21	-06	20	24	00	06	13	-03	25	07	29	21	18	28	20	31												
18	41	08	10	03	03	07	11	08	12	00	15	19	07	20	12	09	27	06	24	25	21	29	15	36	29											
19	56	16	08	01	04	14	26	16	24	12	27	33	14	18	18	08	25	27	35	46	34	47	23	59	27	31										
20	39	12	12	15	12	11	13	28	22	06	28	20	06	08	17	09	21	15	28	32	38	36	17	27	20	26	38									
SUBTOTAL	72	24	12	12	11	14	30	24	33	05	36	34	13	20	20	08	34	23	47	51	39	53	51	76	59	64	74	57								
Personal-Social																																				
21	13	01	07	05	00	04	06	05	01	11	09	-05	05	09	03	-12	05	13	03	00	-02	02	11	07	06	-01	03	02	04							
22	05	09	10	04	-07	02	-01	08	-08	18	06	09	13	-02	07	01	00	06	00	10	-04	06	-11	00	-03	03	06	00	-01	-11						
23	23	12	10	06	10	08	20	08	-11	07	14	07	-02	-03	21	05	08	14	20	18	08	22	09	20	-09	-15	-01	06	00	12	02					
24	14	15	01	05	24	20	18	07	-06	06	17	11	-02	-03	08	-04	11	-01	06	14	06	08	-06	16	-08	04	00	05	03	04	-02	20				
25	68	13	17	15	09	15	19	06	04	00	21	09	-01	06	14	00	06	20	19	26	15	23	13	18	06	01	04	05	11	17	06	24	07			
25&27	65	12	18	16	08	15	18	06	02	01	20	08	-01	06	13	04	05	19	18	25	13	22	12	17	05	02	03	06	10	16	05	23	07	98		
28	40	22	13	08	05	12	04	00	-08	02	13	17	00	01	27	-08	13	13	20	24	06	23	16	23	02	09	15	08	18	12	14	15	27	34	33	
SUBTOTAL	49	21	21	16	08	18	17	09	-05	12	24	12	03	04	21	-03	10	22	20	30	08	26	11	22	05	05	08	07	12	36	38	32	24	83	82	63

TABLE 27

DENVER DEVELOPMENTAL SCREENING TEST ROTATED FACTOR LOADINGS

Item[1]	FI	FII	FIII	FIV	FV	FVI	FVII	FVIII	FIX	FX	FXI	h^2
Gross Motor (N=179)												
1(1)	16	03	74	-11	02	-01	20	-15	-04	01	11	68
1(5)	08	13	22	-66	02	-09	17	-11	-12	-02	01	59
1(10)	06	12	10	-76	-04	-06	-01	-05	01	02	-02	62
2	01	-03	80	-17	07	00	-08	06	13	05	12	72
3	09	12	68	03	00	11	-05	16	12	00	04	54
4	15	04	51	-35	04	04	-11	-08	-01	-19	31	58
5	13	-11	-04	-56	10	11	00	21	10	-24	35	61
6	22	01	07	-14	-29	-14	-18	33	-31	-38	25	64
7	02	-14	04	-37	12	05	33	36	08	-52	05	71
Fine Motor (N=175)												
8	17	01	30	-04	-15	-05	13	11	02	04	61	57
9(s)	12	-01	14	10	-03	78	12	10	02	-04	-17	72
9(d)	07	05	00	01	-03	76	-05	-13	-10	-04	27	70
10	10	14	15	17	09	06	12	22	07	-13	64	60
10(a)	06	06	07	06	01	-02	01	78	-05	07	05	65
11	18	-04	03	-31	-06	10	-13	-16	20	04	60	60
12	27	08	11	-08	49	14	10	04	-28	-03	40	63
13	49	11	13	-15	21	01	-06	-04	-12	07	52	64
14(3)	59	16	10	-18	23	03	15	04	02	14	33	64
14(6)	51	08	01	-30	06	14	-17	00	10	40	12	61
Language (N=175)												
15	50	13	05	-02	-12	07	-22	-23	-05	-31	-07	50
16	77	07	19	-01	09	00	04	04	04	-15	09	68
17	38	03	08	-01	-40	-10	-07	-19	-20	-06	32	52
18	43	02	-02	-04	-50	16	05	04	14	-06	21	55
19	77	-07	07	02	-05	09	14	07	-07	-06	14	67
20	53	00	-02	-25	-09	09	-13	25	18	10	10	51
Personal-Social (N=180)												
21	05	18	-04	-03	15	15	-16	-24	09	-58	-01	53
22	-01	03	-04	-11	00	09	82	03	-01	06	01	71
23	12	20	09	-01	64	-10	-06	00	25	-09	07	57
24	02	02	24	00	08	-07	-01	-01	78	-05	08	70
25	07	94	08	-12	09	01	01	01	00	-03	06	94
25+27	05	95	07	-13	08	01	01	04	00	-03	04	94
28	22	41	08	11	01	-10	39	-25	39	-12	17	67
PCT. V	10	07	07	07	04	05	04	04	04	04	08	

Eleven factors accounted for 64.6% of the variance.

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[1] See key to items on page 55.

TABLE 28

DENVER DEVELOPMENTAL SCREENING TEST

Items Loading Highest on Each Factor

		Loading
FACTOR I (10.4%)		
16.	Comprehends cold, tired, hungry	.77
19.	Opposite analogies	.77
14(3).	Draws man--3 parts	.59
20.	Composition of ———	.53
14(6).	Draws man--6 parts	.51
15.	Uses plurals	.50
13.	Copies cross	.49*
18.	Recognizes colors	.43*
17.	Comprehends prepositions	.38*
FACTOR II (7.1%)		
25+27.	Dresses with supervision	.95
25.	Buttons up	.94
28.	Dresses without supervision	.41*
FACTOR III (7.3%)		
2.	Jumps in place	.80
1(1).	Balances on 1 foot-1 second	.74
3.	Broad jump	.68
4.	Hops on 1 foot	.51
FACTOR IV (6.6%)		
1(10).	Balances on 1 foot-10 seconds	-.76
1(5).	Balances on 1 foot- 5 seconds	-.66
5.	Forward heel-to-toe walk	-.56
FACTOR V (4.4%)		
23.	Washes and dries hands	.64
18.	Recognizes colors	-.50
13.	Copies cross	.49
17.	Comprehends prepositions	-.40

(continued)

TABLE 28

DENVER DEVELOPMENTAL SCREENING TEST

(continued)

		Loading
FACTOR VI (4.5%)		
9(s).	Dumps raisin from bottle-spontaneously	.78
9(d).	Dumps raisin from bottle-demonstrated	.76
FACTOR VII (4.2%)		
22.	Separates from mother easily	.82
28.	Dresses without supervision	.39*
FACTOR VIII(4.4%)		
10(a).	Tower of 8 cubes	.78
FACTOR IX (4.1%)		
24.	Puts on clothing	.78
28.	Dresses without supervision	.39*
FACTOR X (4.0%)		
21.	Plays interactive games	-.58
7.	Backward heel-to-toe walk	-.52
6.	Catches bounced ball	-.38
FACTOR XI (7.5%)		
10.	Imitates bridge	.64
8.	Imitates vertical line	.61
11.	Picks longer line	.60
13.	Copies cross	.52*

Eleven factors accounted for 64.6% of the total variance gross motor activities into two categories. Factor II is largely jumping and hopping activities and Factor IV consists of three items that involve balancing skills. Factor X, accounting for 4.0% of the variance, shows two gross motor items loading with a Personal-Social item that involves gross motor activity ("plays interactive games").

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*Item also shows substantial loading on another factor.

The Fine Motor items distributed themselves among five different factors, but there are three factors on which the high-loading items are only from the Fine Motor scale. Factor XI (7.5% of the variance) included four items, Factor VI (4.5%) consisted only of two "dumps raisin" items, and Factor VIII (4.4%) had only one item with a high loading ("builds tower of 8 cubes"). It is not readily apparent why the fine motor activities cluster in this manner.

There are two factors that contain high-loading items from the Language scale. In fact, Factor I (accounting for 10.4% of the variance) might be labelled a language factor since all six language items show substantial loadings on it (although two of these items load about equally high on Factor V). In addition to the language items, Factor I also has three Fine Motor items with high loadings.

The Personal-Social items load together fairly consistently, but not all on one factor. Factors II (7.1% of the variance) and IX (4.1%) contain only "dressing" items. The two items loading highest on Factor II are understandable since "buttons up" is subsumed under "dressed with supervision". The "dresses without supervision" item complicates the factor analysis since it loads about equally high on three different factors.

Reliability. The four scales of the DDST show good internal consistency. The alpha coefficients for the four scales were .70 for the Gross Motor scale, .73 for Fine Motor, .70 for Language, and .61 for the Personal-Social development scale.

Summary. The modified version of the Denver Developmental Screening Test used here generally exhibits good psychometric properties. Item analysis demonstrates that most of the items show the desired age-related functions in terms of percent of children passing. In general, Home Start children pass items at older ages than chidren in the standardization sample, but other studies have suggested that the DDST norms are not representative of the populations served by Head Start and Home Start. Item intercorrelations, item-scale correlations, and alpha coefficients calculated for each scale support the division of items into four areas of child behavior. Factor analysis resulted in a larger number of factors than four factors representing the four DDST scales. Nevertheless, items from the same scale do tend to cluster together. Data from the Spring 1973 testing will be used to verify the present findings and to check whether the DDST is sensitive to six months' growth in these four areas.

Schaefer Behavior Inventory (SBI)

The Schaefer Behavior Inventory was developed by Schaefer, Aaronson and Small, and was used by the Stanford Research Institute in the Planned Variation Head Start evaluation. The instrument consists of 15 descriptive statements of child behavior that are read to the child's parent. The parent indicates the degree to which the description fits the child by responding on a scale from 1 to 7. The SBI contains three scales of five items each. The scales are labelled Task Orientation, Extraversion-Introversion and Hostility-Tolerance.

This inventory was originally designed for use by teachers to rate the behavior of their pupils. This procedure was changed for the Home Start evaluation by having the mother do the ratings. As a consequence of this, one of the items included in the SRI version that dealt specifically with classroom behavior was deleted and one of the original Schaefer items was substituted; item 13 was reworded to refer to the Home Visitor instead of the teacher.

Response distribution. The distribution of ratings is shown in Table 29. One finding that can be seen in the response distributions is the generally positive bias to the ratings. There are considerably more ratings in the two categories at the positive end of the dimension (categories 6 and 7 on the Task Orientation and Extraversion scales and categories 1 and 2 on the Hostility scale) than at the negative extreme. The two categories indicative of high positive ratings contain 45.7% of all ratings, whereas only 13.7% occur in the two least desirable categories. This positive bias may reduce the likelihood that pre- and post-testing with the SBI would reveal changes in the positive direction.

Correlations. The matrix of item intercorrelations shown in Table 30 reveals the pattern expected in a well-developed instrument. Items within a scale correlate highly with each other but have low correlations with items from other scales. The correlations of each item with the scale subtotals also

TABLE 29

SCHAEFER BEHAVIOR INVENTORY ITEM RESPONSE DISTRIBUTIONS (PERCENTS)

		Rating						
Item[1]	N	1	2	3	4	5	6	7
1	186	02	06	11	25	12	31	08
2	186	02	05	08	14	11	29	28
3	185	03	04	23	17	18	17	15
4	185	09	06	13	33	10	21	06
5	185	02	01	10	06	08	31	39
6	185	18	28	13	11	06	09	12
7	186	02	02	10	17	09	32	25
8	185	02	01	05	04	02	28	55
9	185	42	35	11	04	02	01	03
10	184	08	10	08	19	27	15	09
11	185	07	09	06	11	14	25	25
12	186	07	07	22	12	16	15	19
13	185	01	01	08	15	08	41	25
14	183	08	10	14	14	12	19	20
15	184	14	16	27	14	06	10	10

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[1] See key to items on page 65.

KEY TO

SCHAEFER BEHAVIOR INVENTORY ITEMS

1 Pays attention to what he (she) is doing when other things are going on around him (her).

2 Tries to be with another person or group of people.

3 Gets impatient or unpleasant if he (she) can't get what he (she) wants when he (she) wants it.

4 Stays with a job until he (she) finishes it.

5 Likes to take part in activities with others.

6 Slow to forgive when offended.

7 Becomes very involved in what he (she) is doing.

8 Enjoys being with others.

9 Stays angry for a long time after an argument.

10 Goes from one thing to another; quickly loses interest in things.

11 Watches others, but doesn't join with them.

12 Complains or whines if he (she) can't get his (her) own way.

13 Watches carefully when a home visitor is showing how to do something.

14 Does not wait for others to approach him (her), but makes the first friendly move.

15 Gets angry when he (she) has to wait his (her) turn or share with others.

TABLE 30

SCHAEFER BEHAVIOR INVENTORY INTERITEM AND ITEM-SUBTOTAL CORRELATIONS

	Task Orientation						Extraversion-Introversion						Hostility-Tolerance				
Item[1]	1	4	7	10	13	Sub-total	2	5	8	11	14	Sub-total	3	6	9	12	15
Task Orientation																	
1																	
4	72																
7	64	33															
10	70	29	31														
13	63	46	19	32													
SUBTOTAL	70	72	64	70	63												
Extraversion-Introversion																	
2	23	21	22	08	11	23											
5	31	15	32	17	20	31	52										
8	23	09	21	17	15	23	52	64									
11	-05	-11	06	-01	-09	-05	21	27	33								
14	19	16	22	08	04	19	26	40	31	00							
SUBTOTAL	19	15	29	13	09	26	72	79	79	54	58						
Hostility-Tolerance																	
3	-21	-22	-05	-20	-05	-21	-02	01	-02	-01	00	-03					
6	01	10	-04	-08	03	01	10	-07	-01	-13	04	-02	10				
9	-08	02	35	-19	-08	-08	-10	-20	-22	-03	00	-14	02	35			
12	-33	-20	19	-33	-12	-33	-08	-11	-12	-15	-04	-15	56	19	25		
15	-26	-10	27	-32	-08	-26	-10	-11	-20	-20	51	-17	35	27	24	51	
SUBTOTAL	-16	-11	-14	-34	-10	-25	-05	-14	-17	-16	03	-13	61	61	54	76	74

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[1] The key to SBI items is on page 65.

show the pattern of items correlating higher with their own scale subtotal than with the other two scale subtotals. The correlations of items with subtotal scale scores were corrected by omitting the contribution of the item being correlated from the subtotal. The corrected correlations ranged from .63 to .72 for items on the Task Orientation scale with their scale subtotal, from .54 to .79 for items on the Extraversion-Introversion scale, and from .54 to .76 for items on the Hostility-Tolerance scale.

Factor analysis. In the first attempt at factor analysis, four factors accounting for 57.5% of the total variance were extracted. Two of the factors clearly represent two of the scales--Extraversion-Introversion and Task Orientation; the other two factors are from the Hostility-Tolerance items. Three of the Hostility items loading on one factor deal with the child wanting his own way and an angry reaction when his wishes have been thwarted; the two items loading on the other factor deal with anger directed toward others.

A second factor analysis with Varimax rotation was conducted on the same 15 items but only three factors were rotated. These three factors accounted for 49.7% of the total variance. The factor loadings for the items on these three factors are presented in Table 31; the items loading on each factor are listed in Table 32. In this analysis, the items loaded as expected, according to their scale assignment.

Factor I, which accounted for 17.3% of the total variance, is an Extraversion-Introversion factor. Factor II accounted for 15.5% of the total variance and contains all the Hostility-Tolerance items. Factor III accounted for 16.9% of the variance and contains the five items from the Task Orientation scale.

Although the three traits specified in the construction of the Schaefer Behavior Inventory were confirmed when factor analysis specifying three factors was performed, there is evidence to suggest that the Hostility-Tolerance scale is not measuring a unitary trait. Rather, it seems to be a combination of two factors that may represent different kinds of anger.

Reliability. In order to calculate the internal consistencies of the SBI scales, the entire sample was scored to yield three scale scores for each subject. The alpha coefficients for these five-item scales were .72 for Task Orientation, .72 for Extraversion-Introversion, and .67 for Hostility-Tolerance.

TABLE 31

SCHAEFER BEHAVIOR INVENTORY ROTATED FACTOR LOADINGS THREE FACTORS SPECIFIED

Items[1]	FI	FII	FIII	h^2
1	11	-08	67	47
2	72	01	15	54
3	18	54	-33	44
4	07	05	76	59
5	83	-08	15	73
6	00	60	20	40
7	34	-06	48	36
8	81	-16	06	69
9	-23	51	09	33
10	07	-34	59	47
11	44	-33	-27	38
12	01	72	-35	65
13	09	03	63	41
14	51	16	19	33
15	-05	74	-19	59
PCT.V	17	15	17	

Three factors accounted for 49.7% of the total variance.

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[1] See key to items on page 65.

TABLE 32

SCHAEFER BEHAVIOR INVENTORY

Items Loading Highest on Each Factor

		Loading
FACTOR I	(17.3%) Extraversion-introversion	
5.	Likes to take part in activities with others	.83
8.	Enjoys being with others	.81
2.	Tries to be with another person or group of people	.72
14.	Does not wait for others to approach him (her), but makes the first friendly move	.51
11.	Watches others, but doesn't join with them	.44
FACTOR II	(15.5%) Hostility-tolerance	
15.	Gets angry when he (she) has to wait his (her) turn or share with others	.74
12.	Complains or whines if he (she) can't get his (her) own way	.72
6.	Slow to forgive when offended	.60
3.	Gets impatient or unpleasant if he (she) can't get what he (she) wants when he (she) wants it	.54
9.	Stays angry for a long time after an argument	.51
FACTOR III	(16.9%) Task orientation	
4.	Stays with a job until he (she) finishes it	.76
1.	Pays attention to what he (she) is doing when other things are going on around him (her)	.67
13.	Watches carefully when a home visitor is showing how to do something	.63
10.	Goes from one thing to another; quickly loses interest in things	.59
7.	Becomes very involved in what he (she) is doing	.48

Three factors accounted for 49.7% of the total variance.

Summary. The Schaefer Behavior Inventory consists of three independent, reliable scales describing children's behavior in the areas of Task Orientation, Extraversion-Introversion, and Hostility-Tolerance. Factor analysis confirmed the existence of these three traits, with the qualification that two aspects of hostility may be involved in the ratings. A concern regarding the value of these ratings for program evaluation is the possible ceiling effects due to the generally high ratings (or low ratings in the case of Hostility). Spring 1973 data will be examined to determine whether reliable changes can be expected in ratings on individual items or in mean scale ratings.

Pupil Observation Checklist (POCL)

Upon completion of testing and interviewing, each community interviewer was asked to rate the Home Start child on a checklist consisting of eleven bi-polar adjectives. Ratings were based on the child's interaction with the interviewer and on the child's behavior during the three visits to the home. The 11-item POCL used in the Home Start evaluation was adapted from a 25-item version used by the High/Scope Educational Research Foundation in its evaluation of other early childhood programs.

Response distribution. As with the Schaefer Behavior Inventory, there appears to be a tendency with the POCL for raters (in this case community interviewers), to use the more positive categories. An examination of the distribution of ratings (see Table 33) across the seven response categories reveals that 43% of all ratings are in the top two categories, whereas 10% of the ratings are at the low or socially less desirable end of the continua. For nine of the items the modal response category is a rating of 6 or higher. The apparent reluctance of the community interviewers to assign an undesirable rating to a child may create a situation in which very little pre- to post-test change can occur. In this connection it should be pointed out that the last item (good academic potential vs. poor academic potential) was completed on fewer than half the children; several community interviewers expressed reluctance to rate the children on this dimension.

Correlations. The interitem correlations are presented in Table 34. The generally high correlations among all items suggest that if a community interviewer rated a child positively on one item, there was a strong tendency to rate him positively on the other items. Thus, there is a considerable halo effect that pervades the POCL ratings. Never-

TABLE 33

HIGH/SCOPE PUPIL OBSERVATION CHECKLIST ITEM RESPONSE DISTRIBUTIONS (PERCENTS)

Item	N	Rating						
		1	2	3	4	5	6	7
Cooperative	177	06	06	10	11	16	24	24
Sociable	178	10	16	11	10	12	20	17
Outgoing	178	03	10	16	15	20	15	17
Involved	178	03	05	08	19	21	22	18
Cheerful	178	01	02	05	11	17	32	29
Agreeable	178	02	04	07	18	20	27	20
Active	177	01	04	10	17	15	27	23
Keeps Trying	174	03	08	13	20	12	26	15
Talkative	178	14	15	12	10	16	16	13
Attentive	178	07	07	08	16	20	27	12
Good Academic Potential	87	02	05	08	14	17	29	21

TABLE 34

HIGH/SCOPE PUPIL OBSERVATION CHECKLIST INTERITEM AND ITEM-SUBTOTAL INTERCORRELATIONS

	Task Orientation Subtotal	Sociability Subtotal	Task Orientation					Sociability				
			Coop	Invol	Agree	Keeps Trying	Atten	Soc	Outgo	Active	Talk	Cheerful
Sociability Subtotal	57											
Cooperative	90	59										
Involved	89	63	75									
Agreeable	84	47	76	71								
Keeps Trying	87	45	72	75	64							
Attentive	82	44	66	70	53	64						
Sociable	58	91	54	58	45	46	44					
Outgoing	62	90	52	68	50	52	48	79				
Active	43	76	35	48	42	31	28	57	63			
Talkative	36	86	29	43	26	27	29	71	67	50		
Cheerful	--	--	56	64	73	54	46	48	51	56	33	
Good Academic Potential	--	--	54	61	62	60	49	45	47	46	22	60

theless, items do correlate higher with the scale subtotal (determined from the factor analysis described in the next section) to which they belong than with the other scale subtotal.

Factor analysis. The 11-item POCL was factor analyzed in an attempt to build homogeneous scales from the 11 items that would reflect characteristics of Home Start children as viewed by someone from outside the family. A principal component factor analysis with Varimax rotation extracted two factors which accounted for 71.6% of the total variance. The factor loadings for each item are presented in Table 35 and the items loading on each factor are listed in Table 36.

Factor I, which accounted for 43% of the total variance, included seven items. These items could be interpreted as reflecting the degree of the child's involvement in his relationship with the community interviewer on how this child responded to the testing tasks. "Cooperative", "keeps trying", "agreeable", "involved", "attentive", and "good academic potential", describe traits that would probably be desirable from a tester's point of view. The second factor, on which the remaining four items loaded, accounted for 29% of the variance. These four items reflect a sociability or extraversion dimension. Although the traits of "talkative", "sociable", "outgoing", and "active" may also reflect behavior relative to test-taking, they do not seem to be as clearly associated with behavior in a testing situation.

Following this analysis it was decided to drop two of the POCL items and submit the remaining nine to factor analysis. "Good academic potential" was dropped because of the large proportion of missing ratings (99 out of 186) and "cheerful" was dropped because it had the lowest loading of the items on Factor I (.68) and because of its moderately high loading on Factor II (.37).

The factor analysis of the nine items extracted two factors accounting for 75.7% of the total variance. The revised factor loadings are presented in Table 37; the items loading on each factor are listed in Table 36. The structure of Factor II was identical to that of Factor II in the first analysis. Factor II accounted for 33.6% of the total variance and, again, suggests a general sociability-extraversion factor. Factor I accounted for 42.1% of the variance and contained the remaining five items--items that are here being interpreted as reflecting the child's orientation to the testing task.

Reliability. Two scores were calculated for each child by summing his ratings on the items that loaded higher on each

TABLE 35

HIGH/SCOPE PUPIL OBSERVATION CHECKLIST ROTATED FACTOR ANALYSIS

Items	FI	FII	h^2
Cooperative	85	22	77
Sociable	35	82	80
Outgoing	42	80	81
Involved	80	40	81
Cheerful	68	37	61
Agreeable	82	21	72
Active	28	72	61
Keeps Trying	84	18	74
Talkative	07	88	78
Attentive	75	19	60
Good Academic Potential	69	26	55
PCT. V	43	29	

Two factors accounted for 71.6% of the total variance.

TABLE 36

HIGH/SCOPE PUPIL OBSERVATION CHECKLIST

Items Loading Highest on each Factor

Eleven items factor analyzed:

FACTOR I (43%)

	Item	Loading
1.	Resistive-cooperative	.85
8.	Gives up-keeps trying	.84
6.	Defensive-agreeable	.82
4.	Involved-indifferent	.80
10.	Attentive-inattentive	.75
11.	Poor academic potential-good academic potential	.69
5.	Cheerful-irritable	.68

FACTOR II (29%)

	Item	Loading
9.	Quiet-talkative	.88
2.	Shy-sociable	.82
3.	Outgoing-withdrawn	.80
7.	Active-passive	.72

Two factors accounted for 71.6% of the total variance

Nine items factor analyzed:

FACTOR I (42.1%) Task orientation

	Item	Loading
1.	Resistive-cooperative	.87
8.	Gives up-keeps trying	.85
6.	Defensive-agreeable	.81
4.	Involved-indifferent	.81
10.	Attentive-inattentive	.78

FACTOR II (33.6%) Sociability-extraversion

	Item	Loading
9.	Quiet-talkative	.87
2.	Shy-sociable	.82
3.	Outgoing-withdrawn	.80
7.	Active-passive	.74

Two factors accounted for 75.7% of the total variance

TABLE 37

HIGH/SCOPE PUPIL OBSERVATION CHECKLIST REVISED ROTATED FACTOR LOADINGS

Items	FI	FII	h^2
Cooperative	87	23	82
Keeps trying	85	19	76
Agreeable	81	23	71
Involved	81	42	83
Attentive	78	20	66
Talkative	08	87	77
Sociable	35	82	80
Outgoing	42	80	82
Active	22	74	60
PCT. V	42	34	

Two factors accounted for 75.7% of the variance.

factor, and the internal consistency (alpha coefficient) for each scale was calculated. Alpha for the Task Orientation scale was .92, and for the Sociability-Extraversion scale was .88. It should be recognized, however, that scoring the scales on the same subjects on which the factor analysis was conducted practically insures the emergence of reliable scores (if the factor structure is distinct).

Summary. The two scales derived from the POCL represent homogeneous, reliable scales. Although the intercorrelation matrix leads one to suspect the operation of an overall halo effect, two distinct factors emerged in the factor analyses. A nine-item POCL will be used in the Spring 1973 data collection in an attempt to replicate the factor structure obtained in this analysis. The spring data will also be carefully examined to investigage the problems associated with positive bias evident in the ratings by community interviewers.

High/Scope Home Environment Scale (H/S HES)

The H/S HES is a 39 item parent questionnaire that was included to obtain information on the child's home environment. Since this scale is in the developmental stages, the focus in the analysis is one of examining the scale for its ability to define reliable quantifications of important home environment characteristics.

There have been many procedures developed by various investigators for assessing the home environments of young children. All involve a combination of observations in the home and detailed questions asked of the mother. The High/Scope Home Environment Scale was developed by reviewing some of these procedures (e.g., the Inventory of Home Stimulation used at Syracuse Children's Center, the Cognitive Home Environment Scale by the High/Scope Foundation, the Parent Child Center interviews by the Center for Community Research and the Maternal Behavior Inventory by Schaefer and Aronson). Items were selected or developed for the H/S HES if, on the basis of previous research, they seemed to assess important dimensions of the home environment, and if they related characteristics of the home environment that might be expected to be influenced by the Home Start intervention. The result is the 39-item questionnaire that contains 33 interview-type items that channel the parent's response into one of three or more categories and six observation items that are checked by the community interviewer after leaving the home.

Response distribution. The percentage of Home Start parents responding in each category of the H/S HES items is presented in Table 38. An examination of these response distributions indicates that many items do not provide maximal discrimination (e.g., in item 3, 76% of the responses occur in the first category), whereas other items show a more reasonable response pattern (e.g., in item 15, there is an approximately even distribution). This suggests that changes in the instrument should be made to improve the items. For the Spring testing some of the response categories will be changed in an attempt to achieve greater discriminability, and in some cases poor items will be dropped.

Correlations. The item intercorrelation matrix is presented in Table 39. Although the correlations are generally low, there are 20 correlations of .30 or greater. As with the other instruments, factor analysis was carried out on the missing data intercorrelation matrix in order to investigate the structure of the relationship among items.

Factor analysis. The initial step in a series of analyses was a principal components analysis with Varimax rotation on 31 items of the Home Environment scale. For this analysis, the individual items of the checklists (items 6, 17, 23, 31) were not included, but the total number checked for each of these four items was included. Items 11 and 12 on TV programs were also excluded for this analysis. Twelve factors were extracted, which accounted for 63.6% of the total variance. The rotated factor loadings are presented in Table 40 and the items loading on each factor are listed in Table 41.

The first factor, which accounted for 6.7% of the total variance, had four items with high loadings. These items are characterized by parental involvement in the child's play-type activities. Factor II, which accounted for 5.1% of the total variance, deals with routinizing the child's day with respect to bedtime and mealtime. Factor III, accounting for 5.7% of the total variance, is a punishment factor. Two items dealing with spanking have their highest loadings on this factor. Factor IV, which accounted for 4.2% of the total variance, includes ways the child can entertain himself without parental interaction. The two items that load highest on this factor concern how often the child played at friend's houses and the availability of television.

Factor V accounted for 7.6% of the total variance. The items that load highest on this scale--number of places visited by the child, number of different kinds of toys, how often child goes shopping with mother, and how many children's books were in the home--might be characterized as

TABLE 38

PERCENT RESPONSES TO HIGH/SCOPE HOME ENVIRONMENT SCALE

I WOULD LIKE TO ASK YOU SOME QUESTIONS ABOUT __________ AND YOUR FAMILY.
(Child's Name)

1. DOES __________ GO TO BED AT ABOUT THE SAME TIME EVERY NIGHT, OR
(Child's Name)
DOES HE (SHE) GO TO BED AT DIFFERENT TIMES?

Would you say: 62% usually the same time,
or: 24% the time often changes,
or: 12% it is hardly ever the same from day to day?
2% missing

2. HOW OFTEN DOES YOUR WHOLE FAMILY SIT DOWN AND EAT A MEAL TOGETHER?

WOULD YOU SAY: 69% USUALLY ONCE A DAY OR MORE,
OR: 17% SEVERAL TIMES A WEEK,
OR: 13% NOT THAT OFTEN?
1% MISSING

3. DO YOU EAT BREAKFAST, LUNCH, AND DINNER AT ABOUT THE SAME TIMES EVERY DAY, OR DO MEALTIMES CHANGE A LOT?

ARE THEY: 76% USUALLY AT ABOUT THE SAME TIMES,
DO THEY: 15% OFTEN CHANGE,
OR ARE THEY: 8% HARDLY EVER THE SAME FROM DAY TO DAY?
1% MISSING

4. HOW OFTEN DOES __________ GET TO CHOOSE THE FOOD HE (SHE) EATS AT
(Child's Name)
BREAKFAST OR LUNCH?

WOULD YOU SAY: 57% ALMOST EVERY DAY,
OR: 22% SEVERAL TIMES A WEEK,
OR: 20% NOT THAT OFTEN?
1% MISSING

5. HOW OFTEN DO YOU LET __________ HELP YOU COOK THINGS, CLEAN THE
(Child's Name)
HOUSE, WASH DISHES, OR HELP IN OTHER WAYS AROUND THE HOUSE?

WOULD YOU SAY: 52% ALMOST EVERY DAY,
OR: 23% SEVERAL TIMES A WEEK,
OR: 24% NOT THAT OFTEN?
1% MISSING

TABLE 38 (cont.)

6. I'M GOING TO READ A LIST OF TOYS; PLEASE TELL ME WHICH OF THEM ____________ HAS A CHANCE TO PLAY WITH AT HOME.
(Child's Name)

94% CRAYONS AND COLORING BOOK OR PAPER
47% BUILDING TOYS, LIKE BLOCKS
69% GAMES OR PUZZLES
77% DOLL, TOY SOLDIERS, OR DRESS-UP CLOTHES
80% CUDDLY TOY, SUCH AS A STUFFED ANIMAL OR DOLL
82% TRUCKS, TRAINS, OR DOLL CARRIAGE
53% MUSICAL INSTRUMENT, EITHER TOY OR REAL
48% RECORD PLAYER AND RECORDS
73% JUMP ROPE, SWING, OR SOMETHING TO CLIMB ON
65% PAINTS, MAGIC MARKERS, CLAY, OR PLAY-DOUGH
62% PETS, SUCH AS A DOG, CAT, FISH OR BIRD
Mean number of items checked = 7.6

7. HOW OFTEN DOES ____________ GO ALONG WHEN YOU GO SHOPPING?
(Child's Name)

WOULD YOU SAY: 68% ONCE A WEEK OR MORE,
OR: 16% ABOUT ONCE A MONTH,
OR: 11% PRACTICALLY NEVER?
5% MISSING

8. HOW OFTEN DOES ____________ GO TO ONE OF HIS (HER) FRIENDS HOUSE TO PLAY?
(Child's Name)

WOULD YOU SAY: 35% ALMOST EVERY DAY,
OR: 18% SEVERAL TIMES A WEEK,
OR: 43% NOT THAT OFTEN?
4% MISSING

9. HOW OFTEN WOULD YOU SAY SOMEONE READS STORIES TO ____________?
(Child's Name)

WOULD YOU SAY: 27% ALMOST EVERY DAY,
OR: 45% SEVERAL TIMES A WEEK,
OR: 25% NOT THAT OFTEN?
3% MISSING

TABLE 38 (cont.)

10. DO YOU HAVE A TELEVISION SET THAT WORKS?

6% NO   3% MISSING

91% YES

11. ARE THERE ANY CHILDREN'S PROGRAMS THAT __________ ESPECIALLY LIKES TO WATCH?
(Child's Name)

5% NO

95% YES   WHAT ARE THEY? (write in mother's response)

76% EDUCATIONAL PROGRAMS (Sesame Street, Captain Kangaroo, Electric Co., Around the Bend, Mr. Rogers)

24% OTHER (e.g., cartoons, Lassie)

12. ARE THERE ANY PROGRAMS YOU LIKE HIM (HER) TO WATCH?

25% NO

75% YES   WHAT ARE THEY? (write in mother's response) 82% EDUCATIONAL PROGRAMS

18% OTHER

13. HOW OFTEN DO YOU HOLD __________ IN YOUR LAP, SAY WHILE WATCHING
(Child's Name)
TELEVISION, READING A STORY, OR JUST COMFORTING HIM (HER)?

WOULD YOU SAY: 63% ALMOST EVERY DAY FOR TEN MINUTES OR MORE,
OR: 15% SEVERAL TIMES A WEEK,
OR: 19% NOT THAT OFTEN?
3% MISSING

14. HOW OFTEN DOES __________ CHOOSE HIS (HER) CLOTHES IN THE
(Child's Name)
MORNING WITHOUT YOUR HELP?

WOULD YOU SAY: 49% ALMOST EVERY DAY,
OR: 21% SEVERAL TIMES A WEEK,
OR: 27% NOT THAT OFTEN?
3% MISSING

15. IF __________ IS TRYING TO DO SOMETHING AND CAN'T DO IT HIMSELF
(Child's Name)
(HERSELF), WHAT DO YOU USUALLY DO?

DO YOU: 31% HELP, WHETHER HE (SHE) ASKS FOR HELP OR NOT,
OR: 39% HELP ONLY IF HE (SHE) ASKS FOR IT,
OR: 25% ASK HIM (HER) TO TRY A NEW WAY BEFORE YOU ACTUALLY HELP?
5% MISSING

TABLE 38 (cont.)

16. HOW OFTEN DO YOU TRY TO PRAISE __________ (Child's Name) WHEN HE (SHE) DOES SOMETHING WELL?

WOULD YOU SAY: 78% ALMOST EVERY DAY,
OR: 12% SEVERAL TIMES A WEEK,
OR: 7% NOT THAT OFTEN?
3% MISSING

17. I'M GOING TO READ A LIST OF THINGS CHILDREN START LEARNING WHEN THEY GET TO BE __________ (Child's Name) 'S AGE; PLEASE TELL ME WHICH OF THEM YOU ARE TRYING TO TEACH HIM (HER).

90% NAMES OF THINGS AROUND THE HOUSE
87% NURSERY RHYMES, PRAYERS, OR SONGS
92% COLORS OR SHAPES
55% TO WRITE HIS (HER) NAME
96% TO COUNT
23% TO TELL TIME
85% THE ALPHABET AND NUMBERS
66% TO COOK THINGS OR BUILD THINGS
79% IDEAS LIKE BIG-LITTLE AND UP-DOWN
49% TO READ SIGNS OR WORDS IN BOOKS
Mean number of items checked = 7.3

18. HOW OFTEN DO YOU AND __________ (Child's Name) TALK ABOUT THE PICTURES HE (SHE) MAKES, THINGS HE (SHE) DOES DURING THE DAY, HIS (HER) FRIENDS, AND SO ON?

WOULD YOU SAY: 56% ALMOST EVERY DAY,
OR: 29% SEVERAL TIMES A WEEK,
OR: 13% NOT THAT OFTEN?
2% MISSING

19. WHEN YOU ARE GROCERY SHOPPING WITH __________ (Child's Name) HOW OFTEN DO YOU LET HIM (HER) CHOOSE SOME OF THE FOOD YOU BUY?

WOULD YOU SAY: 46% ALMOST ALWAYS,
OR: 31% ONCE IN A WHILE
OR: 20% NOT VERY OFTEN?
3% MISSING

20. HOW OFTEN DO YOU TAKE AWAY THINGS __________ (Child's Name) LIKES TO PUNISH HIM (HER) FOR DOING SOMETHING WRONG?

WOULD YOU SAY: 30% ONCE A WEEK OR MORE,
OR: 9% ABOUT ONCE A MONTH,
OR: 60% PRACTICALLY NEVER?
2% MISSING

TABLE 38 (cont.)

21. HOW OFTEN DO YOU SLAP OR SPANK ____________ (Child's Name) FOR DOING SOMETHING WRONG?

WOULD YOU SAY: 73% ONCE A WEEK OR MORE,
OR: 13% ABOUT ONCE A MONTH,
OR: 11% PRACTICALLY NEVER?
3% MISSING

22. WHEN YOU HAVE TO SPANK ____________ (Child's Name) HOW OFTEN DO YOU EXPLAIN WHY HE (SHE) IS BEING SPANKED?

WOULD YOU SAY: 87% ALMOST ALWAYS,
OR: 6% ONCE IN A WHILE,
OR: 3% NOT VERY OFTEN,
OR: 2% DOESN'T SPANK?
2% MISSING

23. I'M GOING TO READ A LIST OF PLACES THAT CHILDREN SOMETIMES VISIT, AND THINGS THEY SOMETIMES DO; PLEASE TELL ME WHICH OF THEM ____________ (Child's Name) HAS VISITED OR DONE IN THE LAST YEAR.

71% VISITED RELATIVES OR FRIENDS IN ANOTHER TOWN
82% SEEN ANIMALS IN A FARM OR ZOO
53% VISITED AN AIRPORT, TRAIN STATION, OR BUS STATION
39% GONE RIDING ON AN AIRPLANE, TRAIN, OR BUS
8% VISITED A HISTORY, SCIENCE, OR ART MUSEUM
35% GONE ON A FAMILY VACATION BY CAR
72% EATEN IN A RESTAURANT
24% VISITED A LIBRARY TO TAKE OUT BOOKS
87% GONE PICNICING, SWIMMING, OR FISHING
37% GONE TO A BASEBALL GAME, FOOTBALL GAME, OR OTHER SPORTS EVENT
60% GONE TO A MUSIC CONCERT, A PLAY, OR A MOVIE
Mean number of items checked = 5.8

24. HOW OFTEN DO YOU LET ____________ (Child's Name) TALK ON THE TELEPHONE TO FRIENDS OR RELATIVES?

WOULD YOU SAY: 63% ONCE A WEEK OR MORE,
OR: 8% ABOUT ONCE A MONTH,
OR: 4% PRACTICALLY NEVER,
OR: 22% HAS NO TELEPHONE?
2% MISSING

TABLE 38 (cont.)

25. HOW OFTEN DO YOU LET ____________ PLAY WITH YOUR THINGS, LIKE POTS AND PANS, BLANKETS, SHOES AND HATS, AND SO ON?
(Child's Name)

WOULD YOU SAY: 47% WHENEVER HE (SHE) WANT[illegible]O,
OR: 23% ONLY AT CERTAIN TIMES,
OR: 28% HARDLY EVER?
2% MISSING

26. HOW OFTEN DO YOU JOIN IN THE PLAY ACTIVITIES OF ____________, SAY DRAWING PICTURES WITH HIM (HER), PLAYING GAMES, OR SINGING?
(Child's Name)

WOULD YOU SAY: 42% ALMOST EVERY DAY,
OR: 37% SEVERAL TIMES A WEEK,
OR: 19% NOT THAT OFTEN?
1% MISSING

27. HOW OFTEN DO YOU PLAY "HOUSE" OR PLAY OTHER MAKE-BELIEVE GAMES WITH ____________ ?
(Child's Name)

WOULD YOU SAY: 16% ALMOST EVERY DAY,
OR: 32% SEVERAL TIMES A WEEK,
OR: 51% NOT THAT OFTEN?
1% MISSING

28. HOW OFTEN DO YOU TRY TO GET ____________ TO PUT HIS (HER) OWN TOYS, CLOTHES, OR DISHES AWAY?
(Child's Name)

WOULD YOU SAY: 89% ALMOST EVERY DAY,
OR: 6% SEVERAL TIMES A WEEK,
OR: 3% NOT THAT OFTEN?
2% MISSING

29. HOW OFTEN DO YOU LET ____________ TALK BACK TO YOU WITHOUT PUNISHMENT WHEN HE (SHE) IS VERY ANGRY?
(Child's Name)

WOULD YOU SAY: 16% FAIRLY OFTEN,
OR: 28% ONCE IN A WHILE,
OR: 54% PRACTICALLY NEVER?
2% MISSING

30 HOW MANY CHILDREN'S BOOKS ARE IN YOUR HOME THAT ____________ CAN LOOK AT?
(Child's Name)

WOULD YOU SAY: 49% TEN OR MORE,
OR: 26% SEVERAL, BUT NOT TEN,
OR: 24% THREE OR FEWER?
1% MISSING

TABLE 38 (cont.)

31. I'M GOING TO READ SOME RULES THAT PARENTS SOMETIMES HAVE FOR THEIR CHILDREN; PLEASE TELL ME WHICH OF THESE RULES YOU HAVE FOR ____________ (Child's Name). I'LL READ THEM AS YOU MIGHT SAY THEM TO HIM (HER).

87% DO NOT CROSS THE STREET OR ROAD ALONE
72% COME IN THE HOUSE BY A CERTAIN TIME AT NIGHT
85% NO DESSERT UNTIL YOUR OTHER FOOD HAS BEEN EATEN
63% EAT FOOD ONLY IN THE KITCHEN AREA, NOT IN THE LIVING ROOM
93% SAY PLEASE AND THANK YOU WHEN ASKING FOR THINGS
85% DON'T TALK TO STRANGERS OR GET IN THEIR CAR
70% CLEAN UP YOUR OWN SPILLS WHEN YOU TIP OVER MILK OR PAINT GLASSES
55% STAY AT THE SUPPER TABLE UNTIL EXCUSED
91% WASH YOUR HANDS AND FACE BEFORE EATING
28% OTHER ____________
13% OTHER ____________
8% OTHER ____________

Mean number of items checked = 7.6

32. HOW MANY NEWSPAPERS OR MAGAZINES DO PEOPLE IN YOUR FAMILY GET IN THE MAIL?

28% THREE OR MORE
42% ONE OR TWO
28% NONE AT PRESENT
2% MISSING

33. HOW MUCH IS SOME LANGUAGE OTHER THAN ENGLISH SPOKEN IN YOUR HOME?

IS ONE USED: 2% REGULARLY AS THE MAIN LANGUAGE,
OR: 8% REGULARLY, BUT ENGLISH IS THE MAIN LANGUAGE,
OR: 90% IS ENGLISH THE ONLY LANGUAGE SPOKEN?
1% MISSING

TABLE 38 (cont.)

This Section is to be filled out by the tester after completing the second testing session. Check how often you observed the following:

		not observed	once or twice	three or more times	missing
1.	Mother interferred with the child's actions or restricted his (her) movements (e.g., by holding).	61%	11%	9%	19%
2.	Mother talked to the child or responded verbally to the child.	13%	19%	50%	17%
3.	Mother scolded the child.	45%	25%	12%	19%
4.	Mother used some form of physical punishment (e.g., shaking, pinching, slapping, spanking).	74%	5%	2%	19%
5.	Mother praised the child.	37%	30%	16%	18%

6. Did you see the child's art work displayed anywhere in the home?

28% yes
57% no
15% missing

TABLE 39

HIGH/SCOPE HOME ENVIRONMENT SCALE ITEM INTERCORRELATIONS

(Item Ns range from 177 to 184)

Items[1]	1	2	3	4	5	6	7	8	9	10	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
2	13																													
3	33	13																												
4	-02	13	02																											
5	21	11	18	12																										
6	-19	-14	-25	-12	-16																									
7	06	10	22	14	15	-31																								
8	04	04	00	14	-01	00	-04																							
9	14	11	14	17	31	-28	14	09																						
10	03	-03	08	-03	-06	06	-04	12	-02																					
13	20	13	30	07	08	-19	19	03	11	04																				
14	07	06	-02	17	17	-04	-04	14	17	00	08																			
15	-09	-08	-22	-05	-13	06	02	00	-09	08	00	-04																		
16	16	32	21	06	30	-33	19	-05	27	04	45	19	-01																	
17	-06	-12	-07	-17	-25	32	-16	00	-21	13	-13	-28	10	-27																
18	22	31	22	05	20	-16	18	07	23	03	22	15	-22	31	-29															
19	11	12	16	26	32	-12	25	06	21	02	15	17	-08	26	-30	25														
20	-13	08	-14	-04	-08	08	-11	10	10	07	-14	04	-07	03	00	01	-03													
21	03	10	-06	03	-09	05	-07	-02	-07	01	-17	-03	-02	-08	05	05	-18	23												
22	10	12	00	10	-04	02	00	-01	-09	14	08	-02	-08	12	00	12	-06	06	33											
23	-08	-07	-25	-02	-20	39	-37	-13	-05	-02	-13	04	13	-27	25	-13	-21	09	12	04										
24	02	15	13	-02	13	-18	07	00	04	05	04	04	-15	20	-11	04	15	16	-02	-08	-30									
25	05	02	11	06	16	-11	-02	00	11	-04	17	03	-20	14	-01	02	18	01	-17	-01	-17	18								
26	12	04	07	05	25	-17	24	09	26	05	21	-06	-13	15	-24	26	18	-04	-10	-06	-16	-02	18							
27	09	14	-02	13	22	-13	09	11	29	02	06	07	-12	26	-23	21	23	13	-07	-06	-13	06	11	34						
28	08	06	-07	04	18	-07	07	07	08	-03	-08	01	04	00	-02	-02	13	04	-06	-04	09	-10	03	16	07					
29	06	-07	00	-11	-02	00	00	11	00	10	13	00	04	00	03	-01	-02	-07	-04	-06	-05	00	05	17	11	-12				
30	17	03	14	00	16	-35	21	11	27	05	24	01	-03	31	-17	13	17	09	02	15	-19	26	03	12	16	08	-02			
31	-16	-17	01	-14	-24	04	08	-16	-09	01	00	-17	14	-08	17	-21	-01	-02	-06	-17	09	-09	-01	-09	-27	-04	02	-12		
32	-10	-05	09	-08	07	-20	11	-03	06	12	20	00	-01	17	-13	08	10	-06	-16	-03	-30	21	17	11	03	-08	04	19	03	
33	-07	-10	-01	-16	-03	07	02	04	-01	-04	00	06	-08	00	-04	02	-12	-08	-14	-08	00	02	-01	12	10	09	09	-05	-02	00

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[1] Item numbers correspond to items in Table 38.

TABLE 40

HIGH/SCOPE HOME ENVIRONMENT SCALE
ROTATED FACTOR LOADINGS
(Item Ns range from 177 to 184)

Item	FI	FII	FIII	FIV	FV	FVI	FVII	FVIII	FIX	FX	FXI	FXII	h^2
1	10	-81	08	04	-01	-01	00	-04	05	06	00	-09	69
2	05	-12	07	-03	-02	00	14	-05	04	-18	00	-67	54
3	-17	-55	-13	08	-29	-24	00	11	18	07	00	-29	65
4	08	13	08	10	-10	-07	65	-28	-07	25	14	-12	67
5	33	-32	-10	-17	-13	-21	14	-27	10	-01	24	00	49
6	-17	25	-02	17	62	-12	-10	07	-14	09	-04	-01	59
7	12	01	-06	-01	-62	14	09	20	08	24	19	-28	66
8	12	-06	-05	71	-10	05	06	-27	-23	-01	-01	00	68
9	50	-22	-12	-07	-07	07	17	-15	13	-21	15	-08	48
10	-04	00	10	68	04	03	-01	14	24	-09	-02	00	57
13	08	-20	-01	08	-09	00	02	-01	71	18	-12	-16	65
14	-04	-02	-14	06	13	06	07	-76	17	-05	04	-09	68
15	-05	10	-11	07	08	71	12	07	15	03	-01	22	64
16	20	-12	02	-09	-19	04	02	-19	62	-19	04	-32	68
17	-26	-10	-01	23	37	-02	-03	50	-12	-05	-03	18	58
18	22	-12	12	04	-12	-12	-08	-18	18	07	-01	-62	59
19	20	00	-28	12	-20	-17	42	-14	20	04	24	-22	56
20	15	23	15	14	17	00	02	06	-11	-68	10	-18	68
21	-04	-01	64	-04	06	12	08	08	-25	-18	-08	-17	59
22	-10	01	81	11	04	-10	06	-02	21	11	06	-07	78
23	-04	04	08	-10	77	21	-02	03	-02	02	13	02	68
24	-10	-03	-13	04	-39	-27	-04	-09	06	-59	-08	-05	64
25	18	-03	-13	-01	02	-66	19	06	28	-10	01	20	67
26	71	00	00	08	-17	-16	-10	14	11	23	06	-09	69
27	70	05	-02	05	-06	-09	00	-15	-01	-11	-03	-15	58
28	23	-10	-06	08	07	06	-06	04	-08	04	77	08	71
29	37	-10	-11	23	02	08	-12	08	05	11	-59	14	63
30	19	-24	27	10	-41	13	-01	-05	29	-33	22	15	65
31	-22	18	-34	-07	05	19	05	54	19	02	03	00	59
32	00	22	-04	05	-40	-17	-07	-01	47	-11	-08	23	56
33	08	16	-15	08	-02	-09	-75	-17	00	18	15	-05	73
PCT.V	07	05	05	04	08	05	05	05	06	05	04	05	

Twelve factors accounted for 63.6% of the total variance.

[1] Item numbers correspond to items in Table 38.

TABLE 41

HIGH/SCOPE HOME ENVIRONMENT SCALE

Items Loading on Each Factor

		Loading
FACTOR I (6.7%)		
26.	Joins in play activities of child	.71
27.	Plays make believe games with child	.70
9.	Reads storeis to child	.50
5.	Allows child to help around the house	.33*
FACTOR II (5.1%)		
1.	Consistency of bedtime	-.81
3.	Consistency of mealtime	-.55
FACTOR III (5.2%)		
22.	Explains spankings	.81
21.	Frequency of spankings	.64
FACTOR IV (4.2%)		
8.	Plays at friend's house	.71
10.	Television set that works	.68
FACTOR V (7.6%)		
23.	Number of places visited	.77
6.	Number of toys	.62
7.	Takes child shopping	-.62
30.	Number of children's books	-.41
32.	Number of newspapers or magazines	-.40*
FACTOR VI (4.7%)		
15.	Response when child can't do something himself	.71
25.	Allows child to play with mother's things	-.66

(continued)

TABLE 41

HIGH/SCOPE HOME ENVIRONMENT SCALE

(continued)

	Loading
FACTOR VII (4.5%)	
33. Language spoken	-.75
4. Allows child to choose food to eat	.65
19. Allows child to choose food to buy	.42
FACTOR VIII (5.5%)	
14. Child chooses clothes to wear	-.76
31. Number of rules	.54
17. Number of things mother is trying to teach	.50
FACTOR IX (6.0%)	
13. Holds child in lap	.71
16. Praises child	.62
32. Number of newspapers or magazines	.47*
FACTOR X (4.7%)	
20. Takes away things as punishment	-.68
24. Allows child to talk on telephone	-.59
FACTOR XI (4.3%)	
28. Tries to get child to put his things away	.77
29. Allows child to talk back without punishment	-.59
FACTOR XII (5.1%)	
2. Family eats meals together	-.67
18. Talks to child about his activities	-.62

Twelve factors accounted for 63.6% of the total variance.

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*Item also has substantial loading on another factor.

"amount of stimulation", in the home as well as outside the home.

Factor VI, which accounted for 4.7% of the total variance, had two items with high loadings. These two items deal with parental fostering of the child's independence by letting the child tackle a difficult situation, and letting him play with adult's possessions.

Factor VII accounted for 4.5% of the total variance. The item with the highest loading on this factor concerns the relative importance of English as the language spoken in the home. The other two items that have their highest loadings on this factor deal with allowing the child some choice with respect to food. The item "foreign language as predominant language" tends to relate to the item "parental autonomy with respect to food choice" in these data.

Factor VIII, which accounted for 5.5% of the total variance, had three items that loaded highest. This factor might be labelled "the parent as teacher" factor. Total number of rules for the child and the total number of things the parent is trying to teach the child load highly on this factor.

Factor IX, which accounted for 6.0% of the total variance, might be termed a "parental warmth" factor; the items loading highest on this factor include how often the parent held the child on her lap, and how often she praised the child.

Factor X accounted for 4.7% of the total variance and is, perhaps, another punishment factor, but with deprivation of a privilege or possession rather than physical punishment. However, the loading of the item referring to "how often child may use telephone" is of opposite sign from what might be expected.

Factor XI, which accounted for 4.3% of the total variance, can be characterized as the "tidy child, seen but not heard" factor. The two items loading highest on this factor deal with having the child put away his own things and parental tolerance for backtalk. The last factor, XII, accounted for 5.1% of the total variance and deals with mealtime togetherness and conversation.

The twelve factors resulting from this initial analysis are still too unwieldy and diffuse to have practical applications in assessing the home environment. As a means of further condensing the H/S HES, it was decided to sum the items loading highest on each of these twelve factors to obtain homogeneous cluster scores which could then be submitted to a second factor analysis. "Total number checked" from the four checklist items in the H/S HES were included in this second factor analysis. In addition, the six items completed by interviewers based on their observations of the home environment were included in this analysis.

The second rotated factor analysis using cluster scores and tester observations resulted in eight factors which accounted for 58.9% of the total variance. The factor loadings are presented in Table 42 and the items loading on each factor are listed in Table 43. The first factor accounted for 6.0% of the total variance and has two scales which have their highest loadings on this factor: "punishment by deprivation" and "number of children's books in the home". This factor does not lend itself to a straightforward interpretation.

Factor II accounted for 9.5% of the total variance. Four items, which are observation items referring to negative interactions between mother and child (such as scolding and physical punishment) loaded highest on this factor.

Factor III accounted for 5.2% of the total variance and has as its two clusters with highest loadings, the "tidy child" cluster and the cluster from the original Factor IV, which was interpreted as the "child entertaining self apart from parent".

Factor IV of the second analysis accounted for 8.8% of the total variance and has as items with highest loadings, two observation items referring to observation of positive parental interaction with child and the two item clusters dealing with (1) parental warmth and (2) mealtime togetherness and conversation.

Factor V accounted for 8.1% of the total variance and has as clusters with highest ratings a seemingly unrelated set, "lets child choose own clothes", "number of things parent trying to teach child", "parental autonomy with respect to food choice", and "parent-child playful interaction". Factor VI accounted for 5.6% of the total variance and has the "independence training" cluster loading highest.

Factor VII, which accounted for 5.9% of the total variance, might be called a parental authority factor; the two items with highest loadings are "use of spanking as punishment" and the "number of rules the parent has established for the child".

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TABLE 42

HIGH/SCOPE HES REVISED ROTATED FACTOR LOADINGS
(Item Ns range from 151 to 184)

Items[1]	FI	FII	FIII	FIV	FV	FVI	FVII	FVIII	h^2
1	10	-02	00	36	46	-16	01	-29	47
2	-24	32	09	35	00	-29	-23	-38	58
3	13	01	-08	01	-14	06	-70	03	55
4	08	-14	66	02	28	20	-13	00	61
5	-21	-01	08	-12	-08	81	-09	03	75
6	00	-26	-22	26	52	07	02	-19	51
7	04	12	05	53	20	-15	16	-30	49
8	77	-02	01	05	07	-12	-05	00	63
9	05	-03	-69	-04	23	07	-14	03	57
10	-04	12	-02	52	33	-09	-32	-12	54
11	-11	-14	04	00	-14	06	00	73	60
12	-10	-10	06	-07	-54	00	00	33	44
13	-15	-06	-25	-05	-01	20	-11	66	59
14	-10	-06	-23	-03	-35	19	55	00	54
15	-15	-09	-14	16	04	19	10	-70	62
16	51	04	00	10	08	11	-18	-47	56
17	-01	06	12	-11	73	-10	01	12	59
18	39	09	13	08	01	-12	47	-23	49
19	01	80	-11	12	-02	-02	-13	-07	71
20	-10	54	-15	-40	34	03	15	01	64
21	00	84	08	-02	00	00	04	-13	74
22	26	55	03	18	-09	54	18	09	76
23	-32	10	11	-60	14	00	09	17	55
24	-05	02	07	74	02	03	10	08	58
Pct. V	06	09	05	09	08	06	06	10	

Eight factors accounted for 58.9% of the total variance.

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[1] See key to items on page 90.

KEY TO

HOME ENVIRONMENT SCALE FACTOR LOADINGS IN TABLE 42

Item on Factor Analysis	Home Environment Scale Item
1	Cluster of 5, 9, 26, 27
2	Cluster of 1 and 3
3	Cluster of 21 and 22
4	Cluster of 8 and 10
5	Cluster of 15 and 25
6	Cluster of 4, 19, and 33
7	Cluster of 13 and 16
8	Cluster of 20 and 24
9	Cluster of 28 and 29
10	Cluster of 2 and 18
11	6 (total toys available)
12	17 (total things mother teaching child)
13	23 (total places child visits)
14	31 (total rules parents have)
15	7 (takes shopping)
16	30 (children's books in home)
17	14 (chooses own clothes)
18	32 (number of newspapers and magazines)
19	0-1 (mother interferred with child)
20	0-2 (mother talked to child)
21	0-3 (mother scolded child)
22	0-4 (mother used physical punishment)
23	0-5 (mother praised child)
24	0-6 (child's art displayed)

TABLE 43

HIGH/SCOPE HOME ENVIRONMENT SCALE

Cluster Scores and Items Loading on Each Factor

		Loading
FACTOR I (6.0%)		
20.	Punishment by taking away things	.77
24.	Permits talking on telephone	
30.	Number of children's books	.51*
FACTOR II (9.5%)		
O-3.	Mother scolded child**	.84
O-1.	Mother interfered with child**	.80
O-4.	Mother used physical punishment**	.55*
O-2.	Mother talked to child**	.54
1.	Consistency of bedtimes	.32*
3.	Consistency of mealtimes	
FACTOR III (5.2%)		
28.	Mother gets child to put toys away	-.69
29.	Permits backtalk	
8.	Child plays at friends' house	.66
10.	Own working television	
FACTOR IV (8.8%)		
O-6.	Child's art displayed**	.74
O-5.	Mother praised child**	-.60
13.	Mother holds child on lap	.54
16.	Mother praises child	
2.	Family eats together	.52
18.	Mother and child talk	
1.	Consistency of bedtimes	.35
3.	Consistency of mealtimes	
FACTOR V (8.1%)		
14.	Child chooses own clothes to wear	.73
17.	Total things mother teaches child	-.54
4.	Child chooses food to eat	.52
19.	Child chooses food at store	
33.	Language other than English spoken	
5.	Mother lets child help around house	.46
9.	Someone reads to child	
26.	Mother plays with child	
27.	Mother plays games with child	

(continued)

TABLE 43

HIGH/SCOPE HOME ENVIRONMENT SCALE

(continued)

		Loading
FACTOR VI (5.6%)		
15.	Mother lets child do it himself	.81
25.	Lets child play with mother's things	
0-4.	Mother used physical punishment**	.54*
FACTOR VII (5.9%)		
21.	Mother uses physical punishment	-.70
22.	Mother explains punishment to child	
31.	Total rules	.55
32.	Number of newspapers and/or magazines	.47
FACTOR VIII (9.7%)		
6.	Total toys available to child	.73
7.	Takes child shopping	-.70
23.	Total places child visits	.66
30.	Number of books in home	-.47*
1.	Consistency of bedtimes	-.38*
3.	Consistency of mealtimes	

Eight factors accounted for 58.9% of the total variance

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*Item also has substantial loading on another factor.
**Observed by community interviewer.

The last factor accounted for 9.7% of the variance, and is an "enriching opportunities" factor, with number of toys checked, how often goes shopping, number of places visited, and number of children's books showing high loadings.

A separate factor analysis of the 41 items appearing in the four checklists of the H/S HES (toys, places visited, things parent trying to teach child, and rules) was computed in which 14 factors were extracted, which accounted for 61.6% of the total variance. These factor loadings are presented in Table 44 and the items loading on each factor are listed in Table 45. Tentative names for the 14 factors are also included. These indicate the range of environmental characteristics that are tapped by the Home Environment Scale.

Reliability. The two factor analyses of the H/S HES were used to select subsets of items that could be scored for each child as a way of describing his home environment. Factor II from the second factor analysis was retained as an observer's assessment of maternal negative interaction; Factor III (tidy child), Factor IV, split into interviewer observation and parent observation of positive mother-child interaction and Factor I of the first analysis (parent-child playful interaction), were also retained. The internal consistency of each of these five scales was computed.

Three of the five scales scored for each child showed fairly high reliabilities, especially for scales of only four items each. These were the interviewer observation of negative mother-child interaction, with a coefficient alpha of .69; warm mother-child relationship, with a coefficient alpha of .61; and playful interaction between mother and child, with a coefficient alpha of .60. Reliabilities for the other two scales constructed on the basis of the second factor analysis were essentially zero, rendering them unusable.

Summary. The results from the several factor analyses of H/S HES responses need to be further examined with the intention of identifying items that should be deleted, combined with other items, or rewritten. It has been shown that some reliable and interpretable scales from the H/S HES can be constructed, but it is very important to confirm these results on another sample during Spring 1973.

8-Block Sort Task

The 8-Block Task was originally developed by Hess and Shipman (1965) in their study of maternal teaching styles. The task is made up of three sections. In the first section,

TABLE 44

HIGH/SCOPE HOME ENVIRONMENT SCALE CHECKLISTS
ROTATED FACTOR LOADINGS

Item[1]	FI	FII	FIII	FIV	FV	FVI	FVII	FVIII	FIX	FX	FXI	FXII	FXIII	FXIV	h^2
1	00	06	30	-10	24	01	-18	-02	11	-12	18	-16	-59	01	64
2	00	-09	01	09	-01	10	-71	00	04	08	15	-04	03	00	57
3	08	07	19	-17	08	08	-63	09	02	00	09	00	-04	12	53
4	-03	12	80	-08	-05	00	-19	02	-08	04	-08	-02	-06	-05	73
5	01	03	23	-03	08	25	-24	-09	-03	00	59	-13	-09	-05	59
6	01	16	-15	04	-08	-09	-20	13	11	-04	72	13	-04	10	70
7	07	33	-16	03	-20	-02	-48	-02	-26	-04	13	-27	-07	07	60
8	31	-03	-18	-12	03	00	-20	13	-35	10	24	07	-41	16	60
9	16	-17	25	-15	00	21	-16	15	-40	-08	29	00	07	08	52
10	35	03	33	-18	03	-11	-48	01	23	-23	-01	02	-04	17	66
11	-06	-11	52	11	-29	-06	07	13	20	-15	12	-12	11	13	54
12	03	06	-02	00	20	67	-05	-12	-15	31	09	-01	03	-02	64
13	-10	09	04	-34	07	34	-11	08	-13	00	-04	-12	06	48	56
14	30	11	00	12	-05	52	-20	-06	14	-08	-17	06	-37	22	69
15	26	16	12	-59	-31	00	01	-18	04	00	12	-03	-09	21	67
16	15	51	07	-07	-07	53	-08	01	07	02	-20	-01	-11	15	68
17	14	-13	00	-14	-23	13	-11	-13	-07	16	18	09	-13	52	53
18	26	55	-04	-20	-09	07	-22	-04	18	15	07	32	-11	09	68
19	14	03	02	-08	00	15	-23	17	67	22	18	-06	-05	06	68
20	03	11	-07	-20	-08	59	-02	07	19	-20	14	00	-02	05	53
21	-02	06	-15	-67	01	12	-11	06	07	02	-07	-10	-15	13	57
22	20	-06	21	05	04	10	04	70	17	02	14	-19	-06	-01	69
23	14	04	14	-05	-10	01	-01	14	00	05	-04	-72	00	14	63
24	72	09	-10	03	03	05	-02	23	04	00	08	-14	-12	03	65
25	60	07	03	00	15	-01	00	-04	-14	37	00	03	-08	-01	56
26	04	00	-03	-11	-09	03	-03	07	16	73	-04	-02	-01	04	60
27	26	15	-05	-09	-04	-15	-18	50	-02	04	00	-10	08	00	44
28	47	37	01	00	01	05	-14	01	10	24	-06	-36	-07	-31	70
29	39	-20	-03	-14	-02	10	-15	-36	15	06	24	-10	-06	06	49
30	45	26	02	24	05	23	-29	-03	10	01	03	-37	06	01	64
31	07	-01	-12	-29	04	00	-40	08	11	-13	08	-52	-05	-09	61
32	61	08	10	-14	01	10	-05	20	03	-29	-01	00	13	-02	57
33	18	33	35	14	27	05	11	-15	-08	11	32	-27	-04	18	64
34	-03	19	18	-62	33	04	04	00	-08	18	-01	03	-04	-04	62
35	05	-02	-07	-01	70	15	00	02	00	-04	11	-07	02	-01	55
36	10	11	-07	-04	61	-18	00	-05	-02	-05	-14	22	-15	22	59
37	07	63	05	-05	11	24	10	07	-06	00	04	-09	08	09	54
38	13	21	12	-17	16	04	11	-32	23	-14	09	-18	07	53	66
39	01	08	-04	-14	00	05	09	00	00	11	-01	03	-77	08	66
40	-22	20	-02	03	26	-05	-12	17	09	06	-02	-08	-20	62	66
41	00	66	02	-27	07	-06	-09	03	04	-11	19	-04	-26	-02	66
PCT.V	06	05	04	04	04	04	05	03	03	03	04	04	03	04	

Fourteen factors accounted for 61.6% of the total variances.

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[1] See page 95 for key to items.

KEY TO

HIGH/SCOPE HOME ENVIRONMENT SCALE CHECKLISTS FACTOR ANALYSIS

HES		Factor Analysis (Table 44)	
Item No.	Checklist Description	Item No.	Checklist Description
6.	Toys:	1.	Crayons and coloring book or paper
		2.	Building toys
		3.	Games or puzzles
		4.	Doll, toy soldiers, or dress-up clothes
		5.	Cuddly toy
		6.	Trucks, trains, or doll carriage
		7.	Musical instrument, either toy or real
		8.	Record player and records
		9.	Jump rope, swing, or something to climb on
		10.	Paints, magic markers, clay, or play-dough
		11.	Pets, such as a dog, cat, fish, or bird
17.	Things trying to teach:	12.	Names of things around the house
		13.	Nursery rhymes, prayers, or songs
		14.	Colors or shapes
		15.	To write his (her) name
		16.	To count
		17.	To tell time
		18.	The alphabet and numbers
		19.	To cook things or build things
		20.	Ideas like big-little and up-down
		21.	To read signs or words in books
23.	Places visited:	22.	Visited relatives or friends in another town
		23.	Seen animals in a farm or zoo
		24.	Visited an airport, train station, or bus station
		25.	Gone riding on an airplane, train, or bus
		26.	Visited a history, science, or art museum
		27.	Gone on a family vacation by car
		28.	Eaten in a restaurant
		29.	Visited a library to take out books
		30.	Gone picnicing, swimming, or fishing
		31.	Gone to a baseball game, football game, or other sports event
		32.	Gone to a music conert, a play, or a movie

(continued)

KEY TO

HIGH/SCOPE HOME ENVIRONMENT SCALE CHECKLISTS FACTOR ANALYSIS

(continued)

HES		Factor Analysis (Table 44)	
Item No.	Checklist Description	Item No.	Checklist Description
31.	Rules:	33.	Do not cross the street or road alone
		34.	Come in the house by a certain time at night
		35.	No dessert until your other food has been eaten
		36.	Eat food only in the kitchen area, not in the living room
		37.	Say please and thank you when asking for things
		38.	Don't talk to strangers or get in their car
		39.	Clean up your own spills when you tip over milk or paint glasses
		40.	Stay at the supper table until excused
		41.	Wash your hands and face before eating

TABLE 45

HIGH/SCOPE HOME ENVIRONMENT SCALE CHECKLISTS

Items Loading on Each Factor

		Loading
FACTOR I	(6.6%) "Immediate family outings"	
24.	Visited an airport, train station, or bus station	.72
32.	Gone to a music concert, a play, or a movie	.61
25.	Gone riding on an airplane, train, or bus	.60
28	Eaten in a restaurant	.47
30.	Gone picnicing, swimming, or fishing	.45
29.	Visited a library to take out books	.39*
FACTOR II	(5.6%) "Teaching basics for younger child"	
41.	Wash your hands and face before eating	.66
37.	Say please and thank you when asking for things	.63
18.	The alphabet and numbers	.55
16.	To count	.51*
33.	Do not cross the street or road alone	.33*
FACTOR III	(4.2%) "Opportunities for adult indentification, independence"	
4.	Doll, toy soldiers, or dress-up clothes	.80
11.	Pets, such as a dog, cat, fish, or bird	.52
33.	Do not cross the street or road alone	.35*
FACTOR IV	(4.8%) "Teaching basics to older child"	
21.	To read signs or words in books	-.67
34.	Come in the house by a certain time at night	-.62
15.	To write his (her) name	-.59
FACTOR V	(4.1%) "Rules pertaining to food"	
35.	No dessert until your other food has been eaten	.70
36.	Eat food only in the kitchen area, not in the living room	.61

(continued)

TABLE 45

HIGH/SCOPE HOME ENVIRONMENT SCALE CHECKLISTS

(continued)

		Loading
FACTOR VI (4.8%) "Teaching concepts"		
12.	Names of things around the house	.67
20.	Ideas like big-little and up-down	.59
16.	To count	.53*
14.	Colors or shapes	.52
FACTOR VII (5.5%) "Small toys (fine motor)"		
2.	Building toys	-.71
3.	Games or puzzles	-.63
7.	Musical instrument, either toy or real	-.48
10.	Paints, magic markers, clay, or play-dough	-.48
FACTOR VIII (3.4%) "Extended family outings"		
22.	Visited relatives or friends in another town	.70
27.	Gone on a family vacation by car	.50
29.	Visited a library to take out books	-.36*
FACTOR IX (3.2%) "Indoor and outdoor activities"		
19.	To cook things or build things	.67
9.	Jump rope, swing, or something to climb on	-.40
FACTOR X (3.3%) "Cultural exposure"		
26.	Visited a history, science, or art museum	.73
FACTOR XI (4.0%) "Large toys (gross motor)"		
6.	Trucks, trains, or doll carriage	.72
5.	Cuddly toy	.59
FACTOR XII (4.1%) "Entertainment outside the house"		
23.	Seen animals in a farm or zoo	-.72
31.	Gone to a baseball game, football game, or other sports event	-.52

(continued)

TABLE 45

HIGH/SCOPE HOME ENVIRONMENT SCALE CHECKLISTS

(continued)

		Loading
FACTOR XIII (3.9%) Not clear		
39.	Clean up your own spills when you tip over milk or paint glasses	-.77
1.	Crayons and coloring book or paper	-.59
8.	Record play and records	-.41
FACTOR XIV (4.2%) "Teaching niceties"		
40.	Stay at the supper table until excused	.62
38.	Don't talk to strangers or get in their car	.53
17.	To tell time	.52
13.	Nursery rhymes, prayers, or songs	.48

Fourteen factors accounted for 61.6% of the total variance.

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* Item also has substantial loading on another factor.

the community interviewer teaches the mother how to sort eight wooden blocks into four quadrants of a 12" x 12" board. The blocks vary on four dimensions--height (tall or short), mark (X or O on the ends of the blocks), color (red, yellow, green, or blue), and shape (rectangular or circular in cross-section). The relevant dimensions for sorting are height and mark. In the second section of the task, the mother teaches her child how to sort the blocks. In the third section, the community interviewer asks the child to place two new blocks into the proper groups and to explain the placement. The data on the mother's behavior with the child came from the second section and the child's success is scored from the third section.

The complete task is tape recorded and the tapes are subsequently coded for data analysis (see Appendix B for coding instructions). All but two of the maternal teaching variables are coded from the tapes.

Two of the mother variables were coded by the community interviewer during the mother-teaching-child section of the task--the number of times the mother moved the blocks and the number of times the mother used a form of physical punishment during the task. The number of times the child moved blocks also was coded by the interviewer.

Response distribution. The distribution of frequencies (along with the means and SDs) for the categories coded from the audio tapes are presented in Table 46. For most of the categories, the distributions are highly skewed, with the bulk of the mothers and children emitting only a small number of responses. In general it can be seen that mothers were more likely to talk ("Talks about" categories) and to make comments ("Direct requests" and "comments") than to make requests for talking, placement or for understanding. When mothers did make these requests, they were most likely to be unclassified (i.e., there was less likely to be specific references to the dimensions of the task).

The response distribution for the results of the third section of the task (child's placement and explanation) are presented in Tables 47 to 50. In this section of the task the mother indicates to the community interviewer that she has completed her teaching and the interviewer, using two blocks (a short o and a tall X) that were not part of the original task, asks the child to place each block in the proper group and to explain why he placed it there. The child's response was scored in terms of the correctness of the placement and the verbalized explanation for his placement. The total score for the child on this task can range

TABLE 46

8-BLOCK TASK--MEANS, SD'S, AND FREQUENCY DISTRIBUTIONS OF BEHAVIORS CODED FROM AUDIO TAPES
(N=170)

			Number of Responses									
Behavior	Mean	SD	0	1-2	3-4	5-6	7-8	9-10	11-20	21-30	31-50	51-10
MOTHER												
Requests talking												
Height	2.51	5.01	84	28	27	15	6	4	3	2	1	0
Mark	3.14	5.12	74	37	20	12	6	7	11	3	0	0
Height & Mark	.05	.29	164	6	0	0	0	0	0	0	0	0
Unclassified	12.00	13.59	26	26	13	16	12	9	33	16	16	3
Requests understanding												
Height	5.28	6.43	42	24	35	22	15	6	21	2	3	0
Mark	7.62	8.85	31	22	28	20	14	12	28	9	5	1
Height & Mark	2.93	5.86	85	39	7	12	8	6	12	0	0	1
Unclassified	7.25	7.28	24	37	17	18	16	14	35	6	3	0
Requests Placement												
Height	2.83	4.60	78	33	21	13	10	6	7	2	0	0
Mark	2.75	4.85	71	37	31	9	9	4	8	0	1	0
Height & Mark	2.33	5.63	99	26	13	13	10	2	5	0	1	1
Unclassified	13.92	11.68	3	16	16	21	15	12	47	27	11	2
Talks about												
Future task	.39	.75	124	42	4	0	0	0	0	0	0	0
Height	12.70	12.27	9	13	26	17	12	14	46	17	12	4
Mark	13.04	11.43	12	14	9	19	20	16	44	22	13	1
Height & Mark	3.47	6.90	82	27	22	14	3	7	11	2	1	1
Unclassified	14.35	11.57	7	12	17	13	13	12	55	25	14	2
Comments												
Direct request	23.35	17.76	1	5	6	11	10	8	54	26	32	17
Respond	1.48	2.82	93	43	15	10	5	2	1	1	0	0
Comments	4.23	4.83	25	50	38	24	15	6	9	2	1	0
Task irrelevant	2.18	6.73	115	24	12	3	5	1	6	2	1	1
Praise	1.13	2.78	120	22	17	4	1	2	4	0	0	0
Acknowledge	15.21	14.01	6	12	22	11	11	17	51	20	14	6
Encourage	.08	.45	164	4	2	0	0	0	0	0	0	0
Total Corrections	7.45	8.12	15	41	26	18	12	10	38	8	1	1
With reason	1.85	2.85	71	58	23	6	4	4	4	0	0	0
With question	.60	1.13	109	53	7	0	0	1	0	0	0	0
With firm	.02	.19	167	3	0	0	0	0	0	0	0	0
With threaten	.07	.36	164	5	1	0	0	0	0	0	0	0
Bribe	.23	1.19	156	10	1	1	1	0	1	0	0	0
CHILD												
Talks about												
Height	9.09	12.67	42	18	25	14	16	10	24	9	8	4
Mark	10.56	13.71	40	15	21	13	10	13	32	11	9	6
Height & Mark	.54	1.82	137	22	6	4	0	0	1	0	0	0
Comments												
Direct request	5.99	7.78	48	39	14	12	11	12	23	9	2	0
Respond	9.49	9.40	21	28	19	16	13	11	41	15	6	0
Comments	6.75	10.89	40	46	24	8	8	10	19	7	6	2
Task irrelevant	1.00	2.65	122	27	9	4	5	1	1	1	0	0
Acknowledge	.76	1.63	123	26	11	7	3	0	0	0	0	0
Don't know	.32	.98	142	22	5	0	0	1	0	0	0	0
Refuse	.74	2.25	138	16	8	0	3	2	3	0	0	0

TABLE 47

8-BLOCK PERCENT OF RESPONSES BY AGE
FINAL PLACEMENT OF SHORT 0

AGE (YEARS)	N	INCORRECT	ONE DIMENSION MATCHED	CORRECT
3	16	0	43	56
3½	30	10	26	63
4	47	6	31	61
4½	18	11	38	50
5	37	8	27	64
5½	16	6	18	75
TOTAL	164	7	30	62

TABLE 48
8-BLOCK PERCENTAGE EXPLANATION OF PLACEMENT OF SHORT 0

AGE (YEARS)	N	NO CORRECT VERBALIZATION	ONE DIMENSION VERBALIZED	BOTH DIMENSIONS VERBALIZED	CHILD REFUSAL
3	6	33	33	0	33
3½	9	11	77	0	11
4	23	8	60	21	8
4½	6	0	83	16	0
5	18	16	55	11	16
5½	12	8	58	33	0
TOTAL	74	14	60	16	10

TABLE 49

8-BLOCK PERCENT OF RESPONSES BY AGE FINAL PLACEMENT OF TALL X

AGE (YEARS)	N	INCORRECT	ONE DIMENSION MATCHED	CORRECT
3	17	17	35	47
3½	29	13	37	48
4	44	6	47	45
4½	18	5	44	50
5	36	5	36	58
5½	16	0	37	62
TOTAL	160	8	40	51

TABLE 50

8-BLOCK PERCENTAGE EXPLANATION OF PLACEMENT OF TALL X

AGE (YEARS)	N	NO CORRECT VERBALIZATION	ONE DIMENSION VERBALIZED	BOTH DIMENSIONS VERBALIZED	CHILD REFUSAL
3	6	33	33	0	33
3½	11	9	63	18	9
4	26	19	38	23	19
4½	4	0	100	0	0
5	17	17	35	29	17
5½	11	0	81	18	0
TOTAL	75	14	50	20	14

KEY TO

8-BLOCK SORT TASK ITEMS

Child

1 = Placement score
2 = Explanation score
3 = Total task score

Question of child's final answer:
4 = Block 1
5 = Block 2

6 = Child's block placements

Mother

7 = Moved blocks

Requests Talking:
8 = Height
9 = Mark
10 = Unclassified

Requests Understanding:
11 = Height
12 = Mark
13 = Height and Mark
14 = Unclassified

Requests Placement:
15 = Height
16 = Mark
17 = Height and Mark
18 = Unclassified

Talks About:
19 = Height
20 = Mark
21 = Height and Mark
22 = Unclassified

Comments:
23 = Direct request
24 = Responds
25 = Total Comments
26 = Praise
27 = Acknowledge
28 = Corrections
29 = Corrections with reason

Child

Talks About:
30 = Height
31 = Mark

Comments:
32 = Direct request
33 = Responds

34 = Total comments

from 0 to 8. For each block the child received a score of 2 for correct placement, 1 for a placement in which one dimension is matched, and 0 for a wrong placement.

The scores were derived as follows:

Placement (range of 0 to 2 for each block)

. Placing the "short O":

with the "tall Xs" 0
with the "short Xs" 1
with the "tall Os" 1
with the "short Os" 2

. Placing the "tall X":

with the "short Os" 0
with the "tall Os" 1
with the "short Xs 1
with the "tall Xs" 2

Explanation (range of 0 to 2 for each block)

. For each block, the child received a score of 0 for no correct explanation, a score of 1 for explanations that refer to one of the relevant dimensions, and a score of 2 for verbalizations that explain the placement in terms of both dimensions.

Percent passing. Tables 47 to 50 also indicate the percent of children who pass each "item" by making the correct placement and by giving the correct explanation. In general, the older children perform better on these tasks than do the younger children. Due to missing data, however, the Ns are quite small for some of the age groups, especially for the explanations. Over half of the children placed each of the blocks correctly, but fewer than 20% were able to give the completely correct explanation. There were a number of tester errors in the administration of the 8-Block, however, which may partly account for the performance level of the children.

Correlations. The intercorrelations of the 8-Block items are presented in Table 51. Some of the substantial correlations that appear in this matrix provide support for the validity of the results since they suggest internally consistent patterns. For example, mothers' "Requests talking" (items 8, 9 and 10) all correlate highly with child "Talks about" (items 30 and 31).

TABLE 51

8-BLOCK ITEM INTERCORRELATIONS

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33
1																																	
2	34																																
3	79	84																															
4	-27	04	-15																														
5	02	24	16	23																													
6	-13	-12	-15	14	09																												
7	-07	-07	-08	37	-05	67																											
8	-05	-07	-07	15	-06	-06	19																										
9	-04	07	02	09	10	-05	13	57																									
10	11	26	23	22	07	05	15	43	54																								
11	-05	-13	-11	25	-02	24	15	21	22	17																							
12	-08	-18	-16	23	00	21	15	05	14	01	58																						
13	01	-02	00	14	09	28	04	-03	02	01	31	28																					
14	-07	-06	-08	31	-10	21	11	09	06	24	29	29	19																				
15	-03	-08	-07	07	00	29	22	00	-02	-03	29	25	16	08																			
16	00	-16	-09	05	17	21	19	00	05	03	09	31	28	15	41																		
17	03	-03	00	06	03	27	11	-04	-02	00	13	17	60	08	28	35																	
18	-25	-14	-23	27	-03	38	27	13	16	09	26	35	10	42	12	13	08																
19	01	-03	-01	00	18	13	14	16	23	30	27	19	14	07	26	10	22	08															
20	03	-01	00	03	16	14	13	09	29	29	28	34	27	12	12	24	23	19	73														
21	05	00	02	-29	14	23	15	-06	-04	-07	08	11	41	-01	16	19	66	03	28	32													
22	-08	-10	-11	23	-13	41	35	00	14	18	39	31	18	36	19	25	21	38	31	40	21												
23	-12	-20	-20	16	00	35	36	08	19	10	41	42	24	27	24	31	20	38	38	44	14	73											
24	00	02	02	05	-15	24	16	-07	-06	02	06	06	21	04	14	34	18	06	08	19	28	28	18										
25	02	03	03	04	01	07	15	34	18	09	12	11	10	14	12	15	12	17	09	24	23	17	19	32									
26	04	-01	01	-05	-11	05	00	16	10	11	25	02	03	03	-03	-02	-01	14	10	12	03	16	10	-01	14								
27	11	21	20	00	-14	27	12	19	25	35	49	30	23	33	11	16	17	39	23	35	12	41	38	22	30	38							
28	00	-10	-06	00	-05	31	31	15	25	14	29	33	23	17	25	30	17	38	25	44	22	42	53	31	39	00	46						
29	-01	-11	-08	30	06	28	18	-07	04	-02	19	28	29	07	26	34	24	30	28	37	18	33	41	20	13	-01	19	62					
30	19	19	23	12	00	04	24	59	59	71	18	02	01	07	02	03	00	08	43	44	04	11	14	07	26	15	40	33	01				
31	15	22	23	-01	17	10	18	54	61	67	25	10	07	05	00	08	03	11	41	47	06	14	14	08	24	18	41	31	07	84			
32	-02	-08	-06	24	-04	29	25	-03	-05	04	20	16	16	08	20	33	29	20	17	20	21	50	40	43	17	02	23	31	33	01	05		
33	00	04	02	18	06	22	15	14	27	32	33	34	24	21	11	26	24	28	26	34	32	35	39	23	31	07	46	49	34	31	37	34	
34	05	04	06	-16	-14	33	20	02	-01	07	08	08	09	00	24	21	14	12	08	13	18	24	23	29	24	09	19	25	24	18	29	47	33

Factor analysis. Thirty-four 8-Block variables were entered into a factor analysis. Several of the 8-Block variables showed very low and highly skewed response rates so they were omitted from the factor analysis. Three of the variables included in the analysis pertained to the child's response to the final task--a total score for the two block placements, a total for the two verbalizations, and a total for the four items. Nine factors were extracted from the 34 variables, accounting for 67.9% of the total variance. The factor loadings for each variable are found in Table 52 and the items loading on each factor are listed in Table 53. Most of the resultant factors make sense in relation to the conceptual framework of the development of the 8-Block task. The factors fall into three categories--those on which maternal variables load heavily, those on which child variables load together, and those on which some child and some mother variables load together.

Factors I, VII, and VIII had only mother items as high-loading variables. Factor I, accounting for 6.7% of the variance, might be considered the "height and mark" factor, or "specificity of mother's requests and talking," since the three high-loading items (13, 17 and 21 on the matrix in Table 51 deal with the mother mentioning both dimensions of the task. Contrary to what might be expected, none of these "specificity of mother verbalizations" items was related to child's success on the final task. Another factor (VII) on which mother teaching variables loaded highest is not so easily interpretable. It accounts for 7.8% of the variance and contains five items with loadings above .4, but two of the items load about equally high on other factors. The third maternal factor (VIII) accounts for 5.1% of the variance. The three items with loadings above .5 all have to do with mother requests of the child, either for understanding or placement.

One factor is exclusively a "child-success" factor. Factor III accounts for 7.9% of the variance and the only items loading high (all above .77) were the three variables relating to the child's success on the final task and his verbalizations of the correct explanation.

The other five factors included both maternal and child variables. In most cases, the maternal and child variables that load together on a factor are those one would expect to go together. Factor IX, accounting for 5.8% of the variance, has two items with high loadings--mother's total number of "Block placements" and child's number of "Block movements." Both of these are variables observed and recorded by the tester during the mother-teaching-child portion of the task.

TABLE 52

8 - BLOCK FACTOR ANALYSIS

Item	F1	F2	F3	F4	F5	F6	F7	F8	F9	h^2
1	01	01	77	-15	00	-16	-03	16	10	68
2	00	12	82	01	00	18	08	-20	00	78
3	00	09	97	-08	00	01	03	-03	05	96
4	-11	11	-10	53	01	61	09	-01	-27	78
5	20	10	17	-06	18	65	-20	04	03	58
6	22	-03	-07	21	-15	-01	-10	14	-76	75
7	00	20	-09	10	-15	08	-02	14	-80	76
8	-04	81	-20	08	-02	-08	16	08	01	75
9	-05	76	-06	13	00	06	-14	04	09	65
10	-04	72	24	19	00	07	-12	-13	-14	69
11	10	17	-04	60	07	-22	-22	38	-03	67
12	08	00	-11	55	-04	01	-24	50	08	65
13	72	-02	02	30	-07	08	-06	16	00	66
14	06	05	-03	7	-03	00	04	-03	-08	51
15	12	-03	-01	00	-09	-01	-08	75	-26	67
16	23	00	-04	06	-37	19	-06	55	-04	55
17	83	-04	00	07	-13	04	-06	15	-13	76
18	-04	07	-22	60	-21	00	-09	00	-20	51
19	19	30	-01	-03	04	00	-78	08	-10	76
20	22	29	00	10	-16	03	-77	04	04	78
21	80	-02	00	-13	-24	-09	-22	-02	-07	79
22	03	-03	-05	47	-34	-12	-45	-03	-37	71
23	00	01	-16	41	-30	-05	-54	17	-23	68
24	20	-04	04	00	-68	-02	01	-02	-12	53
25	16	16	34	03	11	-57	-06	11	04	52
26	06	17	04	24	06	-55	-07	-08	-02	42
27	12	28	27	56	-27	-38	-19	03	-01	75
28	01	19	-06	24	-59	-01	-37	25	00	66
29	02	-11	-05	21	-44	29	-43	27	-03	60
30	-03	86	18	00	-10	-06	-21	00	-11	85
31	03	83	20	01	-12	-05	-26	02	-06	83
32	07	-11	00	14	-60	04	-18	05	-32	54
33	20	27	06	36	-48	07	-23	05	04	54
34	01	06	12	-12	-57	-26	-05	19	-31	57
PCT.V	07	12	08	09	09	05	08	05	06	

TABLE 53

8-BLOCK TASK

Items Loading Highest on Each Factor

		Loading
FACTOR I	(6.8%)	
17.	Mother requests placement--height and mark	.83
21.	Mother talks about height and mark	.80
13.	Mother requests understanding--height and mark	.72
FACTOR II	(11.5%)	
30.	Child talks about height	.86
31.	Child talks about mark	.83
8.	Mother requests talking--height	.81
9.	Mother requests talking--mark	.76
10.	Mother requests talking--unclassified	.72
FACTOR III	(7.9%)	
3.	Child's total task score	.97
2.	Child's explanation score	.82
1.	Child's placement score	.77
FACTOR IV	(9.3%)	
14.	Mother requests understanding--unclassified	.70
11.	Mother requests understanding--height	.60
18.	Mother requests placement--unclassified	.60
27.	Mother acknowledges	.56
12.	Mother requests understanding--mark	.55*
22.	Mother talks about unclassified	.47*
FACTOR V	(8.8%)	
24.	Mother responds	-.68
32.	Child makes direct request	-.60
28.	Mother makes corrections	-.59
34.	Child's total comments	-.57
33.	Child responds	-.48
29.	Mother makes corrections with reasons	-.44*

(continued)

TABLE 53

8-BLOCK TASK

(continued)

		Loading
FACTOR VI (4.9%)		
5.	Child gives final answer, block 2	.65
4.	Child gives final answer, block 1	.61
25.	Mother's total comments	-.57
26.	Mother's praise	-.55
FACTOR VII (7.8%)		
19.	Mother talks about height	-.78
20.	Mother talks about mark	-.77
23.	Mother makes direct requests	-.54
22.	Mother talks about unclassified	-.45*
29.	Mother makes corrections with reasons	-.43*
FACTOR VIII (5.1%)		
15.	Mother requests placement--height	.75
16.	Mother requests placement--mark	.55
12.	Mother requests understanding--mark	.50*
FACTOR IX (5.8%)		
7.	Mother moved blocks	-.80
6.	Child moved blocks	-.76

Nine factors accounted for 67.9% of the total variance

---

*Item also had substantial loading on another factor

The item loadings on Factor V (accounting for 8.8% of the variance) suggest that a relationship exists between the child's verbal behavior ("Requests", "Responses" and "Comments") and the mother's responsiveness (total "Responds", "Comments", and "Corrections"). Factor II accounted for the greatest share of the variance (11.5%) and, again, seems to make sense. Three items involving the mother's requesting talking loaded with two items that described child talking--children actually talked more about height and mark when their mothers requested it of them. Factor IV is less easily interpreted. The three highest-loading variables were "Requests understanding (height)", "Requests placement (unclassified)", and "Total acknowledge". This accounted for 9.3% of the total variance.

The loadings on Factor VI are interesting. Although it accounts for only 4.9% of the variance, this factor includes two items that are related to the child's success in the final task and one maternal variable. The two child variables are the tester question numbers on which the child gives the correct explanation of his final block placement and the mother variable is "Total praise". Praise is loaded negatively, suggesting that greater amounts of praise are associated with the child giving the correct explanation sooner.

Reliability. Since practically all of the mother variables were coded from audio tapes, it was possible to obtain an estimate of the reliability of the scoring. A random sample of 10 tapes was coded by two individuals. These two persons had worked together in refining the coding categories from those used by the Stanford Research Institute in the Planned Variation Head Start evaluation. (The manual of definitions used in coding is included in Appendix B.) The results from this reliability check indicate that some of the category definitions should be improved before the spring data are coded. There are 40 categories coded from the tape and for the 10 tapes there are 400 intercoder comparisons. In 83 of these cases (21%) the frequencies coded differed by five or more.

The "unclassified" categories seemed to cause more difficulty than most of the other categories. One-fourth of the 83 discrepancies occurred in the four "Unclassified" categories. When the mother asked the child to talk about the blocks, to tell her something about the blocks, to place a block, and when she was simply talking, her questions were coded to indicate whether she actually mentioned the dimensions of the blocks. "Unclassified" was coded for each of these events whenever the coder was unable to determine whether the mother was referring specifically to one of more of the dimensions. In almost every instance, one coder recorded more unclassified mother requests than the other. This may have the effect of underestimating the number of times mothers requested talking, understanding and placement by specific dimension. The relative number of these requests may be quite valid, however. During the next phase of the pilot year testing, reliability estimates should be obtained for more than two coders to demonstrate the replicability of the coding procedure.

Summary. Although most of the 8-Block factor structure makes sense, there are problems of interpretation. The categorization of mother and child behavior into 40 variables may be producing distinctions that in reality are too fine-grained to hold up in future replications. Combining some of the categories based on factor outcomes may reduce this problem. The use of ratios or other scores based on existing categories will be explored in future analyses to reduce the total number of items to be factored. Additional information could be obtained if it were possible to examine the precise sequence of events (e.g., whether child talking immediately followed maternal requests for talking). This will be attempted in the Spring 1973 data analysis by coding the events from the tapes in temporal sequence and by analyzing sequential dependencies. One problem that must be examined further is the highly skewed response distribution of most items--it was often the case that over half the responses were zero, with one or two extreme responses beyond 50. Scoring reliabilities must also be improved before the Fall 1973 evaluation begins.

Parent Interview

The Home Start Parent Interview was developed to obtain information about the child's medical history, the parent's involvement in activities outside the home, the parent's use of community resources (including medical and dental care facilities), some global reactions to Home Start, and about the parent's reactions to the testing and interviewing. The items relating to health care and to utilization of community resources were adapted from the questionnaire developed by the Center for Community Research for use in the evaluation of the Parent Child Centers program. At a later time it may be possible to compare the responses of parents in these two related programs.

Response distribution. The percentages of responses to each question are presented in Table 54. In general, medical care as reported by the mothers seems to be good; dental care

TABLE 54

PERCENT RESPONSES TO HIGH/SCOPE PARENT INTERVIEW

NOW THAT ALL THE TESTING IS COMPLETED I WOULD LIKE TO ASK YOU SOME QUESTIONS RELATED TO YOUR PARTICIPATION IN HOME START.

Part I. Service Utilization and Community Participation

Complete the following immunization record for the Home Start focal child:

1. NOW I'D LIKE TO FIND OUT ABOUT ____________ 'S HEALTH. FIRST,
(Child's Name)
WHAT ABOUT SHOTS?

	yes	no	don't know	missing
HAS HE (SHE) HAD DPT SHOTS?	93%	4%	1%	2%
HAS HE (SHE) HAD POLIO SHOTS?	91%	7%	1%	2%
MEASLES?	82%	12%	1%	5%
GERMAN MEASLES?	76%	13%	6%	5%

2. DID YOUR YOUNGEST CHILD SEE A DOCTOR FOR ROUTINE CHECK-UPS DURING HIS FIRST YEAR OF LIFE?

86% YES If "yes" ask:

3. HOW MANY VISITS :

12% (1)	21% (4)	5% (7)	3% (10)	8% MISSING
9% (2)	7% (5)	3% (8)	0 (11)	
12% (3)	10% (6)	2% (9)	7% (12)	

9% NO
5% MISSING

4. DOES ____________ SEE A DOCTOR FOR ROUTINE CHECK-UPS OR ONLY
(Child's Name)
WHEN SOMETHING IS WRONG WITH HIM (HER)?

38% ROUTINE CHECK-UPS. Ask:

5. HOW MANY TIMES A YEAR :

49% (1)
31% (2)
3% (3)
4% (4)
3% (5)
1% (6)
0 (7)
1% (8)
3% (9+)
4% Missing

60% ONLY WHEN SOMETHING IS WRONG.
2% MISSING

6. WHEN WAS THE LAST TIME ____________ SAW A DOCTOR?
(Child's Name)

WAS IT 11% ONE WEEK AGO?
29% IN THE PAST MONTH?
28% IN THE PAST 3 MONTHS?
13% IN THE PAST 6 MONTHS?
11% IN THE PAST YEAR?
6% MORE THAN A YEAR AGO?
2% MISSING

TABLE 54 (cont.)

7. WAS THIS VISIT FOR A CHECK-UP OR FOR SOMETHING WRONG?

58% CHECK-UP
37% SOMETHING WRONG
3% BOTH
3% MISSING

8. HAVE ALL OF YOUR CHILDREN UNDER 16 YEARS OF AGE BEEN EXAMINED BY A DOCTOR WITHIN THE LAST YEAR?

69% YES
25% NO
5% MISSING

9. HAVE ALL OTHER FAMILY MEMBERS BEEN EXAMINED BY A DOCTOR WITHIN THE LAST YEAR?

62% YES
35% NO
3% MISSING

10. DOES __________ (Child's Name) HAVE ANY MEDICAL OR PSYCHOLOGICAL PROBLEMS WHICH REQUIRE SPECIAL TREATMENT?

12% YES   Ask:

11. IS TREATMENT CONTINUING?

76% YES
24% NO

84% NO
4% MISSING

12. HAVE YOU HAD ANY CHILDREN SINCE JOINING HOME START?

12% YES
83% NO
5% MISSING

TABLE 54 (cont.)

13. DID YOU SEE A DOCTOR IN CONNECTION WITH YOUR LAST PREGNANCY?

91% YES Ask:

14. HOW MANY VISITS WHILE YOU WERE PREGNANT? (Stop reading when parents says yes)

2% ONE OR TWO VISITS?
5% THREE TO FIVE VISITS?
28% SIX TO NINE VISITS?
63% TEN OR MORE VISITS?
2% MISSING

5% NO
4% MISSING

15. HAS ________ HAD DENTAL EXAMINIATIONS?
(Child's Name)

50% YES Ask:

16. ARE THESE DONE YEARLY?

55% YES 7% MISSING
37% NO

47% NO
3% MISSING

17. DOES ________ HAVE ANY DENTAL PROBLEMS WHICH REQUIRE SPECIAL TREATMENT?
(Child's Name)

9% YES Ask:

18. IS TREATMENT CONTINUING?

62% YES 6% MISSING
31% NO

85% NO
6% MISSING

LET'S CHANGE THE SUBJECT NOW.

19. I'M GOING TO READ A LIST OF GROUPS AND ORGANIZATIONS. TELL ME IF YOU OR YOUR HUSBAND BELONG TO ANY OF THEM OR DO VOLUNTEER WORK FOR ANY OF THEM.

52% HOME START OR HEAD START PARENT COMMITTEE?
22% PARENT-TEACHERS ASSOCIATION?
10% BOY SCOUTS, GIRL SCOUTS, 4–H CLUB, OR OTHER YOUNG GROUP?
27% CHURCH ORGANIZATIONS OR SOCIAL CLUBS?
1% HOSPITAL VOLUNTEER?
8% OTHER COMMUNITY ORGANIZATIONS?
2% ANY POLITICAL ORGANIZATION?
11% OTHER? Write in: ________

TABLE 54 (cont.)

20. ARE YOU OR YOUR HUSBAND TAKING ANY COURSES OR GOING TO SCHOOL?

12% YES

Ask:

21. WHAT LEVEL OF EDUCATION?

IS IT: 57% ADULT EDUCATION?
9% HIGH SCHOOL?
30% COLLEGE COURSES?
4% VOCATIONAL SCHOOL

85% NO

3% MISSING

22. NOW I'M GOING TO READ A LIST OF PLACED AND SERVICES THAT YOU MIGHT HAVE HEARD OF. FOR EACH ONE I WANT YOU TO TELL ME IF YOU HAVE HEARD OF IT AND THEN TELL ME IF YOU HAVE ACTUALLY USED IT. (If parent has heard of it, check yes box. If parent has used it, check used box.)

	YES	NO	YES& USED	MISSING
WELFARE DEPARTMENT	99%	0	67%	2%
FOOD STAMPS	96%	2%	52%	3%
MEDICAID	85%	13%	41%	2%
COMPREHENSIVE HEALTH CENTER	19%	67%	6%	14%
FOOD COMMODITIES	81%	17%	40%	2%
PUBLIC HOSPITAL	79%	18%	59%	3%
PUBLIC HEALTH CLINIC	86%	12%	61%	3%
MENTAL HEALTH CLINIC	75%	19%	9%	5%
FAMILY COUNSELING AGENCIES	71%	24%	13%	5%
PLANNED PARENTHOOD	85%	11%	34%	4%
HEAD START PROGRAM	94%	3%	30%	3%
DAY CARE OR CHILD CARE PROGRAM	85%	13%	10%	2%
ADULT EDUCATION	85%	12%	22%	3%
RECREATIONAL PROGRAMS	70%	24%	16%	6%
LEGAL AIDE	72%	23%	19%	5%
HOUSING AUTHORITY	75%	19%	27%	5%
STATE EMPLOYMENT OFFICE	93%	4%	45%	3%
JOB TRAINING PROGRAMS	86%	10%	17%	4%

TABLE 54 (cont.)

Part II. Reactions to Home Start.

NOW I WANT TO ASK YOU A COUPLE OF QUESTIONS ABOUT THE HOME START PROGRAM.

23. HOW WELL DOES YOUR CHILD SEEM TO LIKE THE HOME START PROGRAM?

WOULD YOU SAY: 87% VERY MUCH?
11% SOME?
0 NOT AT ALL?
2% MISSING

24. HOW SATISFIED ARE YOU WITH THE HOME START PROGRAM SO FAR?

ARE YOU: 87% VERY SATISFIED?
11% FAIRLY SATISFIED?
0 NOT SATISFIED?
2% MISSING

25. HOW DO YOU FEEL ABOUT YOUR HOME VISITOR? WOULD YOU SAY SHE IS VERY GOOD WITH THE CHILDREN?

98% YES
0 NO
2% MISSING

26. DO YOU WISH SHE WOULD DO THINGS DIFFERENTLY?

10% YES
88% NO
2% MISSING

TABLE 54 (cont.)

Part III. Parental Reactions to Testing.

Now that you have finished the parent interview, there are some different types of questions to find out how the parent has reacted to your visits. Start by saying:

● **I REALLY APPRECIATE ALL YOUR COOPERATION DURING MY VISITS, AND I WOULD LIKE TO FIND OUT WHAT YOU THOUGHT ABOUT THE TESTS. FIRST, WHAT DID YOU THINK OF THE TESTS I GAVE TO**

____________ **TELL ME WHICH ONES YOU LIKED AND WHICH ONES YOU**
(Child's Name)
DIDN'T LIKE.

Check the tests the parent mentions in the appropriate box. Do not read the list to the parent. If the parent says that she *didn't* like a test and doesn't say why, ask:

● **WHAT DIDN'T YOU LIKE ABOUT IT?**

Write down what she says in the space after the name of the test.

Test Name	Liked	Didn't like	Missing
DDST	76%	2%	22%
PSI	73%	1%	26%
Height & Weight	73%	0	27%
Enumeration	67%	9%	25%
8–Block	77%	6%	17%

TABLE 54 (cont.)

- **NOW I'D LIKE TO FIND OUT HOW YOU FEEL ABOUT THE THINGS I ASKED YOU ABOUT. TELL ME WHICH THINGS YOU LIKED AND WHICH ONES YOU DIDN'T LIKE.**

  Check the names of the rating scale or interview form that the parent mentions. Do not read the list to the parent. If the parents says that she *didn't* like a test and doesn't say why, ask:

  - **WHAT DIDN'T YOU LIKE ABOUT IT?**

  Write down what she says in the space after the item.

Item	Liked	Didn't Like	Missing
Schaefer	75%	3%	22%
Food Intake	71%	5%	24%
Home Environment Scale	72%	2%	26%
Parent Interview	74%	1%	26%

- **DO YOU HAVE ANY OTHER COMMENTS THAT YOU WOULD LIKE ME TO TAKE BACK WITH ME?** Write in what the parent says.

*	1	2	3	4	5	6	Missing
	15%	9%	17%	2%	14%	6%	38%

- **THANK YOU VERY MUCH FOR ALLOWING ME TO SPEND SO MUCH TIME WITH YOU.**

---

*) 1 = Positive comment about testing/interviewing
2 = Negative comment about testing/interviewing
3 = Positive comment about Home Start program
4 = Negative comment about Home Start program
5 = General positive comment without reference (e.g., everything fine)
6 = Expressed interest in child's development

appears somewhat less adequate. Practically all children have seen a doctor within the past year (item 6) and more than 90% have had their DPT and polio shots (item 1). Only 51% of children have had dental examinations (item 15). Parental involvement in groups and organizations is minimal, with the exception of parent committees for Home Start (item 19). Very few parents are continuing their education by being enrolled in formal classes (item 20).

The Home Start parents report a high degree of awareness of the availability of community resources, with a considerable proportion actually making use of such services (item 22). More than 80% of the respondents report they are aware of basic supportive services (welfare, food stamps, medicaid and food commodities) with a minimum of 40% reporting having used those services. There is also considerable awareness of medical facilities (public hospital, mental health clinic, family counseling agencies and planned parenthood), although they have been used less than the basic supportive services. The other services listed in item 22 (early childhood programs, resources related to employment, recreation, education, legal aide and housing) are reported as used to a lesser degree.

The parents report that they are highly satisfied with the Home Start program (see items 23-26), but the questions were not very probing. The Spring 1973 revision of the Parent Interview will probe in greater depth in order to determine what the parent is actually getting out of Home Start. The parents also appear fairly compliant when it comes to the evaluation effort. Few reported any dislikes regarding the tests and interviews. The largest percent responding "didn't like" was for the Food Intake Questionnaire (4%), the 8-Block Task (6%), and the ETS Enumeration Test (9%).

Correlations. Intercorrelations of items relating to the medical and community resources section (Part I) of the Parent Interview are presented in Table 55. Except for the high correlations among the innoculations in item 1, and a few correlations greater than .40 among several of the items relating to medical care, there do not seem to be any noteworthy patterns of intercorrelations. The use of community resources (item 22), for example, does not correlate to any substantial degree with any of the other Parent Interview items.

Summary. The Parent Interview is evaluated primarily in terms of the apparent usefulness of the information obtained from the parents' responses. It does not seem appropriate or necessary to compute factor analyses or scale scores. Modi-

TABLE 55
HIGH/SCOPE PARENT INTERVIEW PART I

ITEM INTERCORRELATIONS

	DPT	Polio	Measles	German Measles	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	Total 19	20	Yes Total 22
DPT																								
1. Polio[1]	84																							
Measles	61	58																						
German Measles	30	33	50																					
2	00	-02	02	-01																				
3	-05	07	01	00	00																			
4	10	10	08	-01	16	-21																		
5	-05	-08	10	-06	-10	37	09																	
6	09	08	05	15	09	-18	05	-45																
7	04	00	-06	-01	04	-03	00	02	24															
8	09	02	05	00	22	-27	28	-08	15	-01														
9	00	00	05	06	16	-11	09	-03	06	05	38													
10	02	04	-17	-15	12	-14	16	-37	22	-06	14	08												
11	17	17	34	13	00	-23	44	43	42	09	06	27	52											
12	-09	-06	-11	-08	12	04	09	-21	09	00	08	01	15	-16										
13	-05	-06	-02	-07	37	02	09	00	03	07	19	06	00	-11	09									
14	-08	-07	-08	-16	-13	-01	03	21	-10	06	-11	-13	-05	26	-01	07								
15	02	04	09	11	-07	03	00	-16	13	09	-11	01	00	16	02	-08	02							
16	-14	-16	-09	-24	27	-23	34	08	00	05	10	04	02	53	19	18	09	18						
17	00	01	-09	06	-10	00	03	-23	17	-06	14	01	19	07	12	00	03	18	-14					
18	37	37	05	00	-18	15	-37	00	-21	09	-18	-20	-47	35	-40	13	18	00	09	43				
Total 19	-09	-10	-12	-02	-04	-03	02	17	-03	00	-03	-10	02	-20	-01	01	-01	-07	05	07	-21			
20	08	10	04	-01	00	-10	15	20	13	-04	11	07	17	09	-09	01	-03	00	05	-05	20	01		
Yes Total 22	-21	-21	-10	-16	-03	01	-06	15	-22	02	-06	-01	-18	05	-09	00	-02	-10	16	-10	24	08	-14	
Yes & Used Total 25	-10	-11	-05	00	-09	18	-04	22	-17	01	-09	-13	-04	08	-19	-07	03	-01	-20	16	11	00	-17	36

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[1] Items correspond to question numbers on the Parent Interview (see Table 54).

fications in the interview will be made for the Spring 1973 data collection, primarily to simplify the medical information, to obtain more demographic data, and to increase the information about the parents' reactions to and involvement in the Home Start program.

Food Intake Questionnaire

In order to obtain a global estimate of the nutritional content of the diets of Home Start children, a procedure presented in Screening Children for Nutritional Status: Suggestions for Child Health Programs (Public Health Service, 1971) was modified for pilot testing in the Fall. A list of 41 common foods or food groups was prepared (see Table 56). The community interviewer read the items to the mother, who indicated whether the focal child ate them on the previous day and, if so, whether they were eaten more than once.

Response distribution. The percent of parents responding in each category of the Food Intake Questionnaire is presented in Table 56. Although the individual food frequencies are interesting, for analysis purposes the items were grouped into five groups--meats, fruits and vegetables, dairy products, bread and cereal, and sweets. Analyses, including scores based on these groupings, are included in the analysis of whole scores.

Summary. An examination of research on nutrition as well as consultations with experts in the field of nutrition, have led to a re-examination of the value of this procedure for assessing nutritional intake. It appears that much more detailed information on the quantities of various foods of known nutritional value is necessary. Therefore, the Food Intake Questionnaire administered in Spring 1973 will utilize the method of "24-hour recall" in which the parent is asked to recall everything her child ate on the day preceding the interview. The community interviewers will be trained to probe for exact quantities (to the extent that the parent can determine them).

Height and weight. Measures of the child's height and weight were included to assess physical growth. The findings based on these data are reported in the section on the analysis of whole scores.

TABLE 56
PERCENT RESPONSES TO CHILD FOOD INTAKE QUESTIONNAIRE

	Did not eat yesterday	Ate once yesterday	Ate more than once yesterday
BACON	67	32	1
TONGUE	0	0	0
SAUSAGE	81	18	2
LUNCHEON MEAT	53	42	5
HOT DOGS	80	17	3
LIVER-CHICKEN	99	1	0
LIVER-OTHER	99	1	0
POULTRY	65	34	2
SALT PORK	96	4	1
PORK OR HAM	76	23	1
BONES (NECK OR OTHER	97	3	0
MEAT IN MIXTURES (STEW, TAMALES, CASSEROLES, ETC)	65	31	4
BEEF OR VEAL	67	30	3
OTHER MEAT	92	7	1
FISH	89	10	1
CHITTERLINGS	99	1	0
FRUIT JUICE	46	40	15
FRUIT	35	49	15
CEREAL-DRY	52	41	8
CEREAL-COOKED OR INSTANT	81	19	1
CEREAL-INFANT	99	1	0

	Did not eat yesterday	Ate once yesterday	Ate more than once yesterday
EGGS	42	52	6
PANCAKES OR WAFFLES	88	11	1
CHEESE	69	25	5
POTATO	40	56	4
OTHER COOKED VEGETABLES	44	50	6
RAW VEGETABLES	81	16	4
DRIED BEANS OR PEAS	79	20	1
MACARONI, SPAGHETTI, RICE, OR NOODLES	54	45	1
ICE CREAM, MILK PUDDING, CUSTARD OR CREAM SOUP	62	31	7
PEANUT BUTTER OR NUTS	63	32	4
SWEET ROLLS OR DOUGHNUTS	82	16	2
CRACKERS OR PRETZELS	60	33	7
COOKIES	55	32	13
PIE, CAKE, OR BROWNIES	80	18	2
POTATO CHIPS OR CORN CHIPS	67	29	4
CANDY	41	46	13
SOFT DRINKS, POPSICLES OR KOOLAID	52	40	8
INSTANT BREAKFAST	99	1	0
MILK	12	43	45
BREAD	8	42	50

Analyses of Whole Scores

The previous section analyzed items; this section analyzes total test scores and their interrelationships. The whole scores from the various instruments in the battery provide basic descriptive data on the entering Home Start sample, and in some cases permit comparisons with the results of other studies. Also, they provide preliminary estimates of interrelationships between different child characteristics. The first subsection below presents the basic descriptive data and where possible compares them to data from other studies. The second subsection presents the interrelationships among scores as determined from correlations and factor analyses.

Descriptive Data

Means, standard deviations, and standard errors of the means for all of the child scores are presented according to age in Table 57. Similar information is presented by age and sex in Table 58. The total scores for the DDST and ETS Enumeration were obtained by adding up the subscores for each child, so any children missing one or more subscores were excluded from the final column of means.

The score for the 8-Block Task is the sum of the children's scores (0-2) on each of the placement and verbalization items at the end of the task. Data were included in the analysis only if the child had the opportunity to make both block placements. Children who were missing one or both trials (which could occur because of tester error, interference by the mother, or the child's refusal to respond to the tester) were not included in the analysis.

Five measures from the Fall 1972 pilot evaluation can be compared with data from other studies: the Preschool Inventory, the ETS Enumeration Test, the 8-Block Task, weight, and height.

Preschool Inventory. The PSI has been widely used in other research, but the only available data for the 32-item version come from the Head Start Planned Variation evaluation. The Huron Institute (1973) reported mean scores by three-month age intervals for children in that project during Fall 1971. Scores from the Home Start children were separated into the same age groups for comparison, and means and standard deviations were calculated. The two sets of means are compared in Table 59. A reversal in the direction of differences appears at 57 months: Home Start children score higher than Head Start children below that age, but Head Start children with previous preschool

TABLE 57 (a)

DESCRIPTIVE DATA BY AGE

Age (years)	Denver Developmental Screening Test																			
	Gross Motor				Fine Motor				Language				Personal-Social				TOTAL			
	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE
3	21	2.2	1.5	.34	18	4.2	1.5	.36	17	2.2	1.6	.38	21	4.4	1.8	.39	16	13.5	4.5	1.12
3½	31	3.4	1.7	.30	31	5.9	2.0	.36	31	2.6	1.6	.30	31	5.5	1.5	.26	31	17.4	4.1	.74
4	51	4.3	1.8	.25	48	6.7	2.0	.29	49	3.2	1.8	.26	51	5.9	1.3	.18	47	20.0	5.2	.75
4½	19	4.5	1.6	.36	20	7.6	2.2	.48	20	3.7	1.5	.33	20	5.9	1.2	.27	19	21.9	2.9	.66
5	40	4.7	1.8	.28	41	7.1	2.1	.33	41	3.7	1.6	.25	40	6.0	1.3	.20	38	21.2	4.5	.72
5½	17	6.5	1.4	.33	17	7.9	1.7	.40	17	4.2	1.6	.40	17	6.0	1.2	.28	17	24.6	4.1	1.00
TOTAL	179	4.2	2.0	.15	175	6.6	2.2	.17	175	3.3	1.7	.13	180	5.7	1.4	.11	168	19.9	5.2	.40

TABLE 57 (b)

DESCRIPTIVE DATA BY AGE

Age (years)	Preschool Inventory				Height				Weight				8-Block			
	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE
3	18	8.7	4.1	.97	19	36.1	3.2	.74	22	31.0	3.8	.81	16	3.1	1.2	.30
3½	29	11.2	5.3	.98	31	39.0	1.8	.31	32	34.4	4.0	.71	29	3.5	1.7	.32
4	44	13.1	6.1	.93	51	39.3	3.4	.48	51	36.2	5.6	.78	43	4.0	2.0	.31
4½	19	13.1	4.5	1.03	19	40.7	3.6	.84	19	38.2	6.3	1.44	18	3.4	1.4	.33
5	39	15.1	6.0	.96	40	40.7	3.5	.55	41	38.0	5.9	.92	36	3.9	2.0	.33
5½	17	17.4	5.9	1.43	17	40.8	5.2	1.27	17	38.8	5.4	1.31	16	5.1	1.7	.42
TOTAL	166	13.2	6.0	.46	177	39.5	3.7	.28	182	36.1	5.7	.42	158	3.8	1.8	.15

TABLE 57 (c)

DESCRIPTIVE DATA BY AGE

Age (years)	Schaefer Behavior Inventory												High/Scope Pupil Observation Checklist							
	Task Orientation				Extraversion/ Introversion				Hostility Tolerance											
	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE
3	24	22.1	5.8	1.17	24	24.8	6.6	1.35	24	18.8	3.9	.79	23	18.9	7.4	1.55	23	14.5	6.6	1.38
3½	32	23.1	4.2	.74	32	26.2	6.7	1.19	32	18.1	5.4	.95	32	22.9	6.9	1.22	32	17.5	5.5	.97
4	51	23.9	5.6	.78	51	27.5	4.8	.67	51	17.7	6.4	.89	50	23.6	7.5	1.06	50	18.9	6.3	.89
4½	20	23.5	5.4	1.22	20	25.5	7.2	1.61	20	19.0	7.0	1.58	18	24.7	6.9	1.63	18	16.9	5.2	1.23
5	42	25.1	5.1	.78	42	25.9	6.0	.92	42	18.3	5.9	.90	38	26.7	6.4	1.04	38	19.2	6.8	1.10
5½	17	26.1	6.0	1.47	17	28.2	3.6	.87	17	15.8	5.4	1.32	17	29.9	4.6	1.12	17	20.0	6.1	1.49
TOTAL	186	24.0	5.4	.39	186	26.4	5.9	.43	186	18.0	5.8	.42	178	24.2	7.4	.55	178	18.1	6.3	.47

TABLE 57 (d)

DESCRIPTIVE DATA BY AGE

Age (years)	ETS Enumeration																			
	Counting				Pointing				Matching same number				Matching same order				TOTAL			
	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE
3	21	.1	.4	.10	14	1.0	1.0	.28	14	3.6	.9	.25	14	2.3	1.3	.34	12	7.3	2.1	.61
3½	30	.8	1.3	.24	30	2.6	1.9	.35	22	2.9	1.1	.24	25	3.2	.9	.19	20	10.5	3.4	.76
4	47	1.0	1.5	.21	48	3.0	1.8	.26	42	3.0	1.2	.19	47	2.7	1.0	.14	40	10.0	3.9	.62
4½	19	.9	1.5	.35	18	3.2	2.0	.47	16	3.1	1.5	.39	16	3.1	1.0	.26	14	10.8	3.6	.95
5	42	1.5	1.5	.24	40	3.7	2.0	.31	37	3.8	1.6	.27	37	2.9	1.1	.17	36	11.9	4.1	.68
5½	17	2.5	2.6	.64	16	3.9	1.9	.48	12	4.8	1.5	.43	15	3.3	1.3	.33	11	16.4	4.8	1.45
TOTAL	176	1.1	1.6	.12	166	3.0	2.0	.15	143	3.4	1.4	.12	154	2.9	1.1	.86	133	11.0	4.3	.37

TABLE 58 (a)

DESCRIPTIVE DATA BY AGE AND SEX

		Denver Developmental Screening Test																			
		Gross Motor				Fine Motor				Language				Personal-Social				TOTAL			
Age	Sex	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE
3	M	13	2.0	1.5	.42	11	3.7	1.5	.45	11	2.7	1.6	.47	12	4.3	1.6	.45	10	13.1	4.6	1.46
	F	8	2.5	1.6	.57	7	4.9	1.5	.55	6	1.2	1.0	.40	9	4.6	2.2	.73	6	14.2	4.6	1.89
3½	M	16	3.1	1.5	.38	16	5.4	2.0	.49	16	2.5	1.5	.39	16	5.1	1.6	.41	16	16.1	4.0	1.00
	F	15	3.7	1.8	.46	15	6.4	2.0	.52	15	2.8	1.8	.46	15	5.9	1.2	.31	15	18.7	3.9	1.00
4	M	25	4.1	1.8	.35	23	5.9	2.0	.42	24	2.7	1.8	.37	25	5.6	1.4	.29	22	18.0	5.5	1.17
	F	26	4.5	1.8	.36	25	7.4	1.8	.37	25	3.6	1.7	.34	26	6.1	1.1	.22	25	21.7	4.3	.86
4½	M	13	4.2	1.7	.46	14	7.0	2.3	.62	14	3.9	1.3	.35	14	6.1	1.1	.29	13	21.5	2.9	.81
	F	6	5.3	1.0	.42	6	8.8	1.0	.40	6	3.3	2.0	.80	6	5.3	1.5	.61	6	22.8	2.8	1.14
5	M	20	4.6	1.7	.39	21	7.2	2.0	.43	21	3.4	1.5	.33	20	5.9	1.5	.34	19	20.8	4.5	1.02
	F	20	4.9	1.8	.40	20	7.1	2.2	.50	20	4.0	1.7	.38	20	6.1	.9	.20	19	21.6	4.6	1.05
5½	M	4	6.3	.5	.25	4	8.8	1.3	.63	4	4.8	.5	.25	4	6.0	.8	.41	4	25.8	2.2	1.11
	F	13	6.6	1.6	.43	13	7.6	1.7	.47	13	4.0	1.8	.51	13	6.0	1.3	.36	13	24.2	4.6	1.27
TOTAL	M	91	3.8	1.9	.20	89	6.1	2.3	.24	90	3.1	1.6	.17	91	5.5	1.5	.16	84	18.6	5.3	.58
	F	88	4.6	2.0	.21	86	7.1	2.0	.22	85	3.4	1.8	.20	89	5.8	1.3	.14	84	21.1	4.9	.53

TABLE 58 (b)

DESCRIPTIVE DATA BY AGE AND SEX

		Preschool Inventory				Height				Weight				8-Block			
Age	Sex	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE
3	M	12	9.3	4.8	1.39	10	37.1	2.7	.84	13	32.0	3.8	1.05	12	3.2	1.3	.39
	F	6	7.5	2.1	.85	9	34.9	3.6	1.20	9	29.6	3.5	1.17	4	2.8	.5	.25
3½	M	16	10.3	4.1	1.02	15	39.2	1.8	.46	16	35.7	4.2	1.06	15	3.4	1.1	.29
	F	13	12.2	6.5	1.80	16	38.8	1.7	.43	16	33.1	3.4	.86	14	3.6	2.3	.61
4	M	20	11.8	5.8	1.30	25	38.8	3.6	.73	25	35.8	4.9	.98	21	3.7	2.1	.46
	F	24	14.2	6.3	1.29	26	39.8	3.2	.63	26	36.6	6.3	1.23	22	4.2	2.0	.42
4½	M	14	13.4	4.1	1.09	14	40.0	4.1	1.08	14	36.4	5.3	1.42	14	3.7	1.3	.35
	F	5	12.2	5.9	2.65	5	42.5	.8	.38	5	43.0	6.8	3.05	4	2.5	1.3	.65
5	M	21	14.7	6.6	1.45	21	40.3	3.7	.81	21	38.2	6.2	1.35	18	4.1	2.1	.50
	F	18	15.7	5.3	1.24	19	41.2	3.3	.75	20	37.8	5.7	1.28	18	3.7	1.9	.44
5½	M	4	17.0	2.3	1.15	4	43.2	3.3	1.67	4	42.8	5.3	2.66	4	5.2	1.7	.85
	F	13	17.5	6.7	1.86	13	40.1	5.6	1.55	13	37.5	5.0	1.39	12	5.0	1.8	.51
TOTAL	M	87	12.4	5.6	.60	89	39.4	3.5	.37	93	36.2	5.4	.56	84	3.7	1.8	.19
	F	79	14.1	6.3	.71	88	39.6	3.8	.41	89	36.0	6.0	.64	74	3.9	2.0	.23

TABLE 58 (c)

DESCRIPTIVE DATA BY AGE AND SEX

		Schaefer Behavior Inventory												High/Scope Pupil Observation Checklist							
		Task Orientation				Extraversion/ Introversion				Hostility Tolerance											
Age	Sex	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE
3	M	15	22.5	6.4	1.64	15	24.5	7.5	1.92	15	19.1	3.4	.89	14	17.2	7.1	1.89	14	15.3	7.7	2.07
	F	9	21.6	4.9	1.63	9	25.4	5.4	1.79	9	18.2	4.7	1.56	9	21.4	7.6	2.53	9	13.2	4.6	1.53
3½	M	16	22.8	3.9	.98	16	24.9	8.1	2.03	16	19.2	5.4	1.34	16	23.1	6.4	1.61	16	18.8	4.6	1.15
	F	16	23.4	4.6	1.15	16	27.6	4.8	1.20	16	16.9	5.3	1.32	16	22.7	7.5	1.88	16	16.3	6.2	1.55
4	M	25	23.2	5.6	1.13	25	27.8	5.3	1.06	25	17.9	7.2	1.43	25	22.3	7.5	1.51	25	18.0	5.9	1.18
	F	26	24.5	5.6	1.09	26	27.2	4.4	.86	26	17.5	5.6	1.10	25	24.8	7.4	1.47	25	19.8	6.7	1.33
4½	M	14	23.8	4.2	1.13	14	24.4	8.1	2.16	14	17.0	5.9	1.59	14	24.0	7.3	1.94	14	17.3	5.6	1.49
	F	6	22.7	8.0	3.28	6	27.8	4.3	1.76	6	23.5	7.8	3.19	4	27.3	5.7	2.87	4	15.8	4.2	2.10
5	M	21	24.0	5.1	1.12	21	26.7	6.0	1.30	21	18.1	6.1	1.32	20	27.8	5.7	1.27	20	19.5	5.9	1.32
	F	21	26.3	4.8	1.05	21	25.0	6.0	1.32	21	18.4	5.8	1.27	18	25.5	7.1	1.67	18	18.8	7.8	1.85
5½	M	4	28.5	3.9	1.94	4	26.8	4.8	2.39	4	16.3	8.8	4.39	4	28.3	6.6	3.28	4	17.0	8.7	4.36
	F	13	25.3	6.5	1.81	13	28.7	3.3	.90	13	15.6	4.5	1.24	13	30.4	4.1	1.13	13	20.9	5.2	1.45
TOTAL	M	95	23.5	5.1	.53	95	26.0	6.7	.69	95	18.1	5.9	.61	93	23.4	7.5	.77	93	17.9	6.1	.63
	F	91	24.4	5.5	.58	91	26.9	4.9	.51	91	17.8	5.7	.59	85	25.2	7.2	.78	85	18.2	6.6	.72

TABLE 58 (d)

DESCRIPTIVE DATA BY AGE AND SEX

		ETS Enumeration																			
		Counting				Touching				Matching Same Number				Matching Same Order				TOTAL			
Age	Sex	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE	N	Mean	SD	SE
3	M	12	.2	.6	.17	9	.7	.9	.29	8	3.5	1.1	.38	8	2.4	1.2	.42	7	6.9	2.5	.94
	F	9	0	0	0	5	1.6	1.1	.51	6	3.7	.8	.33	6	2.2	1.5	.60	5	8.0	1.4	.63
3½	M	15	.6	1.1	.29	14	2.1	2.1	.55	10	2.8	1.1	.36	10	2.9	.7	.23	8	9.6	3.5	1.24
	F	15	1.1	1.5	.40	16	3.1	1.7	.44	12	3.0	1.1	.33	15	3.3	1.0	.27	12	11.1	3.4	.97
4	M	22	1.1	1.6	.34	22	2.9	1.9	.41	18	3.1	1.5	.34	21	2.8	1.2	.27	17	10.6	4.6	1.10
	F	25	1.0	1.3	.27	26	3.0	1.7	.34	24	2.9	1.1	.22	26	2.6	.6	.12	23	9.5	3.4	.71
4½	M	14	.9	1.7	.46	13	3.0	2.1	.58	11	3.3	1.5	.45	11	3.1	.9	.28	9	10.8	3.6	1.19
	F	5	1.0	1.0	.45	5	3.8	1.8	.80	5	2.8	1.8	.80	5	3.2	1.3	.58	5	10.8	4.0	1.77
5	M	21	1.5	1.6	.35	21	3.6	1.9	.42	19	4.2	1.7	.40	20	2.9	1.0	.22	19	12.1	4.6	1.05
	F	21	1.6	1.5	.33	19	3.7	2.1	.48	18	3.4	1.5	.34	17	2.8	1.2	.29	17	11.6	3.6	.87
5½	M	4	1.3	1.0	.48	4	3.3	2.1	1.03	4	5.0	1.2	.58	4	3.8	1.0	.48	4	13.3	3.6	1.80
	F	13	2.9	2.9	.80	12	4.1	1.9	.56	8	4.6	1.7	.60	11	3.1	1.4	.41	7	18.1	4.7	1.77
TOTAL	M	88	1.0	1.5	.15	83	2.7	2.0	.22	70	3.5	1.5	.18	74	2.9	1.1	.12	64	10.7	4.3	.53
	F	88	1.3	1.8	.19	83	3.3	1.9	.21	73	3.3	1.4	.16	80	2.9	1.1	.12	69	11.2	4.3	.51

TABLE 59

COMPARISON OF HEAD START AND HOME START PSI MEANS BY AGE

	HEAD START[1]						HOME START		
	Children with previous preschool experience			Children with no previous preschool experience					
Age (months)	N	Mean	SD	N	Mean	SD	N	Mean	SD
36-38	---	---	---	4	7.8	4.8	12	8.2	5.0
39-41	---	---	---	4	6.8	1.5	16	9.9	4.3
42-44	2	12.0	3.0	16	7.6	3.8	13	11.8	5.5
45-47	6	13.0	3.3	63	10.2	4.6	24	14.3	5.3
48-40	35	12.1	5.9	207	10.6	4.5	21	11.3	6.6
51-53	63	13.0	5.3	374	11.2	4.9	18	13.6	4.9
54-56	57	13.2	5.6	397	12.5	5.0	19	14.5	5.9
57-59	81	15.0	5.6	368	13.4	5.1	12	13.7	5.7
60-62	121	17.7	5.6	257	15.9	5.6	11	16.5	6.5
63-65	99	17.2	5.8	162	17.0	5.4	4	15.3	6.8
66-68	96	19.7	5.1	165	17.4	5.6	6	17.8	5.5
69-71	99	20.6	5.8	119	19.9	5.5	8	18.3	5.8

---

[1] Huron Institute unpublished data from Fall, 1971, Head Start Planned Variation sample.

experience score higher above that age. However, above 57 months Home Start children are equal to or only slightly below Head Start children without previous preschool experience. Inferences should be drawn cautiously, though, because of the small sizes of the Home Start groups, and because age differences are confounded with site differences. Systematic age differences across Home Start sites are caused by the presence or absence of public kindergarten; in the two sites where there is no public kindergarten children enter the program at age four instead of three, and stay until they are six.

ETS Enumeration Test. The 1973 Huron Institute report of the Fall 1971 Planned Variation Head Start data presented total scores (summed across all four subtests) for the EST Enumeration Test. Even though the reliability data reported in the "Item Analyses" section of this report suggest that the final two scales are unreliable and the combined score may not be too meaningful, total scores were calculated for the Home Start sample for comparison with the age groups listed in the Huron Institute report. The two sets of means are presented in Table 60. Unlike the PSI results, all ages of Home Start children scored equal to or higher than Head Start children, even though the latter includes children with previous preschool experience.

8-Block Task. Comparative data on the child's test portion of the 8-Block Task are also found in the Huron Institute report of the Fall 1971 Head Start evaluation. The Head Start and Home Start mean scores (total score for placing two blocks and explaining the placement) are presented in Table 61. The Home Start scores are higher than Head Start for some age groups and lower for others, without any clear patterns of difference. At most it can be said that the Home Start data are not inconsistent with the hypothesis that the Home Start population is similar to the Head Start population.

Weight and Height. The measures of weight and height are considered important indicators of children's physical growth. For comparative purposes, percentile norms were obtained from the Children's Medical Center, Boston, Massachusetts. The mean height and weight for each age group is charted for girls in Figure 2 and for boys in Figure 3. It can be seen that only the four-and-one-half-year-old Home Start girls are normal in height and weight; other ages are below the 10th percentile in height and between the 10th and 50th percentiles in weight.

TABLE 60

COMPARISON OF HEAD START AND HOME START ETS ENUMERATION TEST MEANS BY AGE

	HSPV[1]			Home Start		
Age (months)	N	Mean Score	S.D.	N	Mean Score	S.D.
36-38	3	2.3	1.2	8	7.8	2.1
39-41	1	3.0	---	8	8.6	3.0
42-44	8	8.4	3.2	11	10.5	2.9
45-47	28	8.9	3.8	22	11.1	4.1
48-50	96	9.1	4.1	19	9.1	4.1
51-53	173	9.6	4.3	14	10.3	2.6
54-56	188	10.4	4.3	18	12.7	4.4
57-59	175	10.6	3.9	10	10.1	3.5
60-62	135	13.1	4.3	10	12.4	4.5
63-65	93	13.7	4.6	3	15.3	6.1
66-68	113	14.5	4.2	4	14.0	6.7
69-71	74	15.5	5.1	5	17.6	2.7

---

[1] Huron Institute, unpublished data from Fall, 1971, HSPV sample.

TABLE 61

COMPARISON OF HEAD START AND HOME START 8-BLOCK MEANS BY AGE

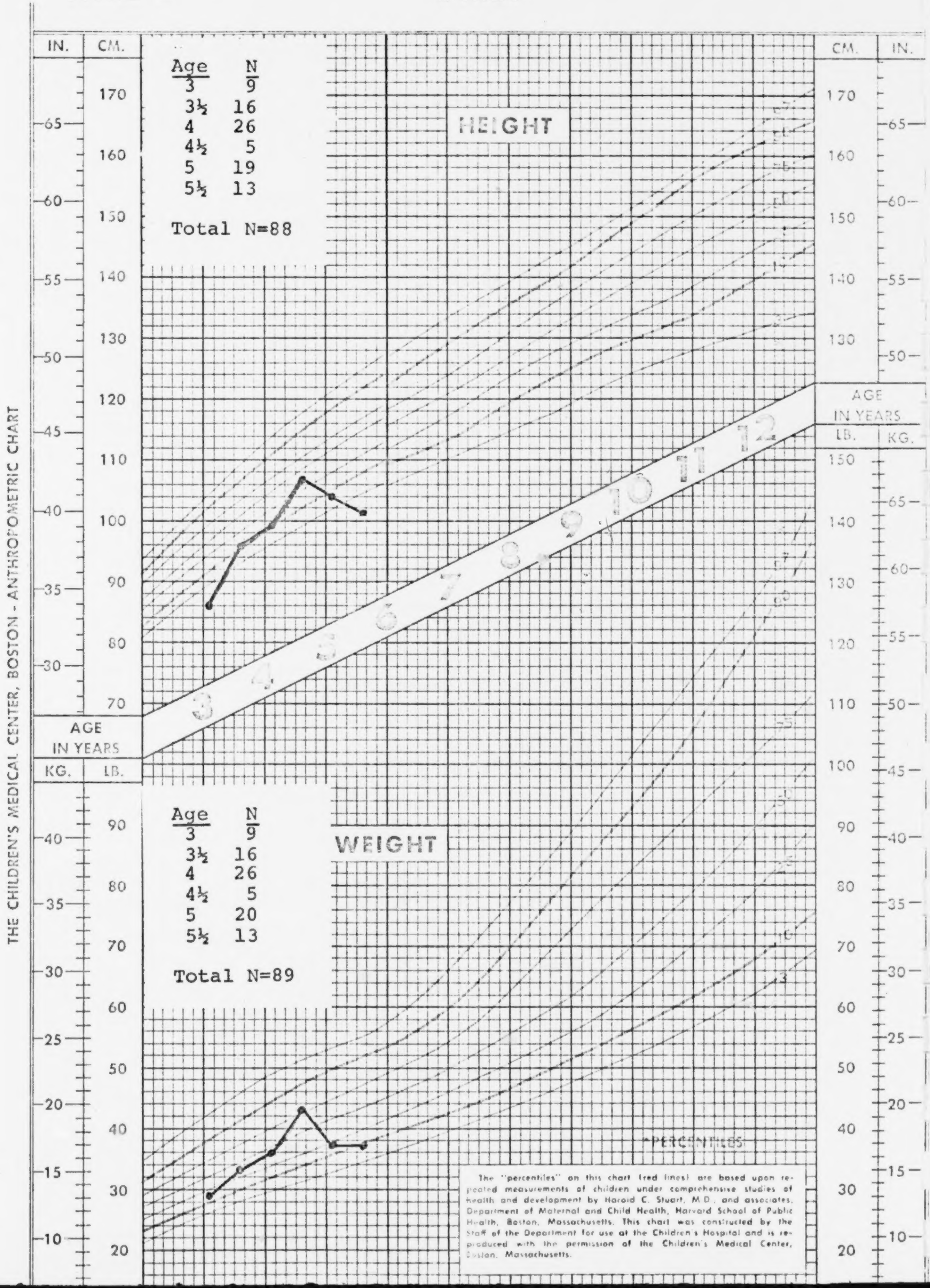
Age (months)	HSPV[1] N	HSPV[1] Mean Score	HSPV[1] S.D.	Home Start N	Home Start Mean Score	Home Start S.D.
36-38	3	3.3	3.4	9	2.9	.9
39-41	1	4.0	---	15	3.5	1.4
42-44	11	2.5	2.3	12	3.8	2.0
45-47	33	3.4	2.1	26	3.8	2.1
48-50	116	3.8	2.3	18	3.9	2.1
51-53	201	3.5	2.3	18	3.6	1.5
54-56	195	3.9	2.2	17	3.6	2.1
57-59	184	4.7	2.1	12	4.1	1.7
60-62	137	4.9	2.2	10	3.8	2.1
63-65	98	4.6	2.5	4	5.0	2.4
66-68	111	5.8	2.2	5	4.8	1.1
69-71	72	5.9	2.0	8	5.1	1.7

---

[1] Huron Institute, unpublished data from Fall, 1971, HSPV sample.

FIGURE 2

GIRLS



Age	N
3	9
3½	16
4	26
4½	5
5	19
5½	13

Total N=88

Age	N
3	9
3½	16
4	26
4½	5
5	20
5½	13

Total N=89

The "percentiles" on this chart (red lines) are based upon repeated measurements of children under comprehensive studies of health and development by Harold C. Stuart, M.D., and associates, Department of Maternal and Child Health, Harvard School of Public Health, Boston, Massachusetts. This chart was constructed by the Staff of the Department for use at the Children's Hospital and is reproduced with the permission of the Children's Medical Center, Boston, Massachusetts.

PERCENTILE CHART FOR MEASUREMENTS OF GIRLS

THIS CHART provides for girls standards of reference for body weight and recumbent length at ages between 2 and 6 years and for weight and standing height from 6 to 13 years. It is based upon repeated measurements at selected ages of a group of more than 100 white girls of North European ancestry living under normal conditions of health and home life in Boston, Mass. The distribution of the measurements obtained from these children at each age is expressed in percentiles, each percentile giving a value which represents a particular position in the normal range of occurrences. The number of the percentile refers to the position which a measurement of the given value would hold in any typical series of 100 children. Thus, the 10th percentile gives the value for the tenth in any hundred; that is, 9 children of the same sex and age would be expected to be smaller in the measurement under consideration while 90 would be expected to be larger than the figure given. Similarly the 90th percentile would indicate that 89 children might be expected to be smaller than the figure given while 10 would be larger. The 50th percentile represents the median or midposition in the customary range. Here, the 10th and 90th percentiles are represented in heavy lines to show the limits within which most children remain. The lighter lines in the graphs divide the distribution into segments for ready recognition and description of individual differences as well as of the "regularity" of progress. The 3rd and 97th percentiles represent unusual though not necessarily abnormal findings.

In line with common usage in the United States, the charts are ruled on a scale in pounds to represent weight. They are ruled, however, in centimeters to represent length under 6 years and height thereafter, because this scale facilitates accuracy in measuring and recording and centimeter rules and tapes are readily available. For the convenience of those preferring them, scales for kilograms and inches are placed outside of the principal scales and paralleling them. Therefore, if weights are taken in kilograms and lengths and heights in inches, they may be plotted directly without conversion by placing a ruler at the appropriate points on the outer scales of the chart.

To determine the percentile position of any measurement at a given age, the vertical age line is located and a dot is placed where this intersects the horizontal line representing the value obtained from the measurement. Vertical lines give age by 2-month intervals and horizontal lines by 2-pound and 2-cm. intervals. This permits by interpolation accurate placement for age to ½ month and for measurements to ½ pound or 0.5 cm. Recognition of the position held by a child within or outside of the range in respect to each measurement recorded calls attention to the relative size and build of the individual at the time. More importantly, comparisons of percentile positions held by these measurements at repeated periodic examinations indicate adherence to or possibly significant deviation from previous percentile positions. Under normal circumstances, one expects a child to maintain a similar position from age to age — that is, on or near one percentile line or between the same two lines. Occasionally encountered sharp deviations or more gradual but continuing shifts from one percentile position to another call for further investigation as to their causes. In all cases, readings of measurements should be checked and care should be taken to secure the same position of the child accurately at all examinations. The following procedures were used in obtaining these norms and therefore are recommended:

Body Weight — The child is weighed without clothing except light undergarments.

Recumbent Length — The child lies relaxed on a firm surface parallel to a centimeter rule. The soles of the feet are held firmly against a fixed upright at the zero mark on the rule, and a movable square is brought firmly against the vertex. The head is held so that the eyes face the ceiling.

Height — The child's heels should be near together, and heels, buttocks and occiput should be against a firm vertical upright mounting the measuring stick. The eyes should be horizontal and approximately in the same plane as the external auditory canals. A right angle triangle or other movable device should be placed firmly on the head at right angles to the measuring stick and the measurement read after a satisfactory position has been adopted.

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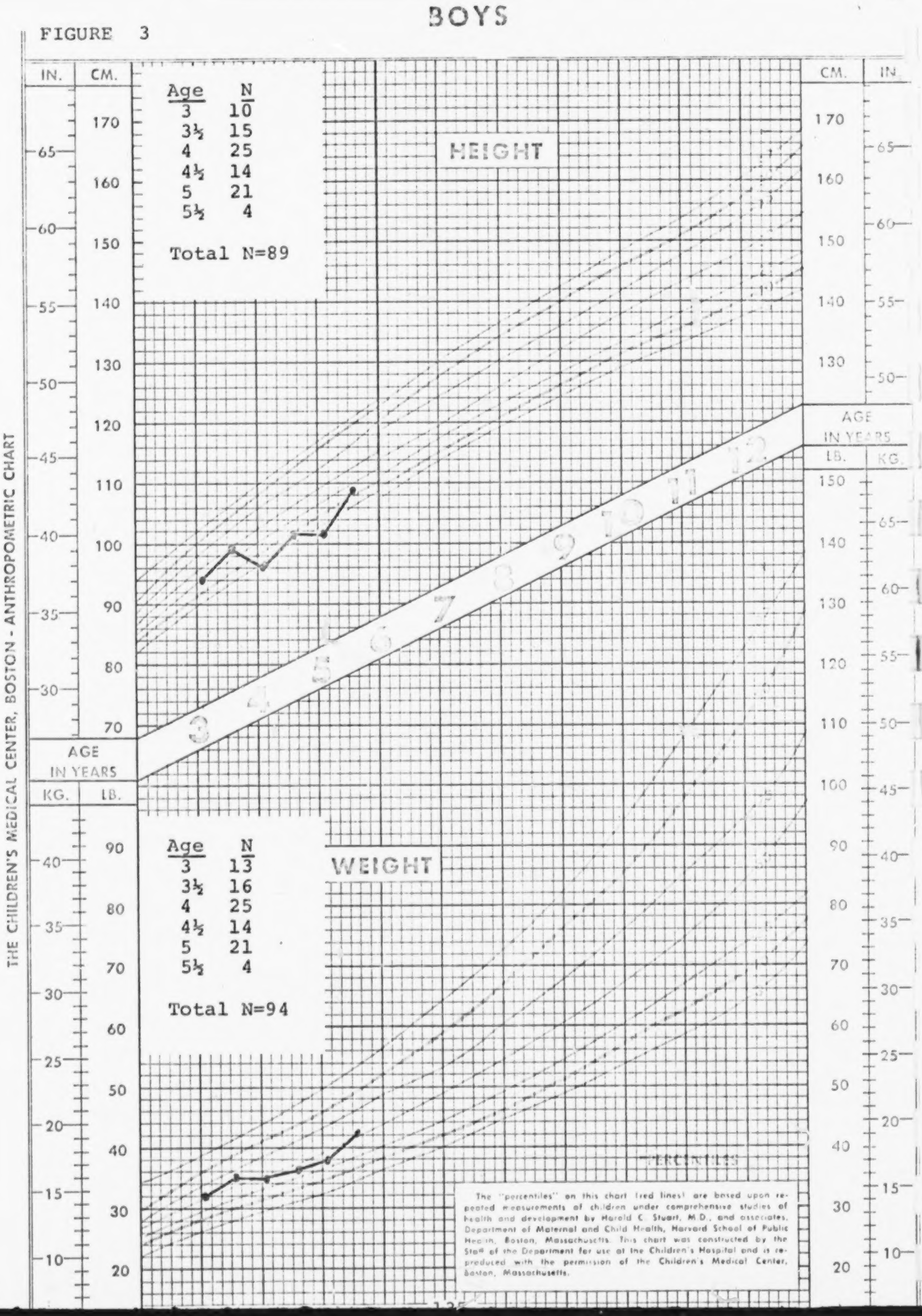
FIGURE 3



Age	N
3	10
3½	15
4	25
4½	14
5	21
5½	4

Total N=89

Age	N
3	13
3½	16
4	25
4½	14
5	21
5½	4

Total N=94

The "percentiles" on this chart (red lines) are based upon repeated measurements of children under comprehensive studies of health and development by Harold C. Stuart, M.D., and associates, Department of Maternal and Child Health, Harvard School of Public Health, Boston, Massachusetts. This chart was constructed by the Staff of the Department for use at the Children's Hospital and is reproduced with the permission of the Children's Medical Center, Boston, Massachusetts.

PERCENTILE CHART FOR MEASUREMENTS OF BOYS

THIS CHART provides for boys standards of reference for body weight and recumbent length at ages between 2 and 6 years and for weight and standing height from 6 to 13 years. It is based upon repeated measurements at selected ages of a group of more than 100 white boys of North European ancestry living under normal conditions of health and home life in Boston, Mass. The distribution of the measurements obtained from these children at each age is expressed in percentiles, each percentile giving a value which represents a particular position in the normal range of occurrences. The number of the percentile refers to the position which a measurement of the given value would hold in any typical series of 100 children. Thus, the 10th percentile gives the value for the tenth in any hundred; that is, 9 children of the same sex and age would be expected to be smaller in the measurement under consideration while 90 would be expected to be larger than the figure given. Similarly the 90th percentile would indicate that 89 children might be expected to be smaller than the figure given while 10 would be larger. The 50th percentile represents the median or midposition in the customary range. Here, the 10th and 90th percentiles are represented in heavy lines to show the limits within which most children remain. The lighter lines in the graphs divide the distribution into segments for ready recognition and description of individual differences as well as of the "regularity" of progress. The 3rd and 97th percentiles represent unusual though not necessarily abnormal findings.

In line with common usage in the United States, the charts are ruled on a scale in pounds to represent weight. They are ruled, however, in centimeters to represent length under 6 years and height thereafter, because this scale facilitates accuracy in measuring and recording and centimeter rules and tapes are readily available. For the convenience of those preferring them, scales for kilograms and inches are placed outside of the principal scales and paralleling them. Therefore, if weights are taken in kilograms and lengths and heights in inches, they may be plotted directly without conversion by placing a ruler at the appropriate points on the outer scales of the chart.

To determine the percentile position of any measurement at a given age, the vertical age line is located and a dot is placed where this intersects the horizontal line representing the value obtained from the measurement. Vertical lines give age by 2-month intervals and horizontal lines by 2-pound and 2-cm. intervals. This permits by interpolation accurate placement for age to ½ month and for measurements to ½ pound or 0.5 cm. Recognition of the position held by a child within or outside of the range in respect to each measurement recorded calls attention to the relative size and build of the individual at the time. More importantly, comparisons of percentile positions held by these measurements at repeated periodic examinations indicate adherence to or possibly significant deviation from previous percentile positions. Under normal circumstances, one expects a child to maintain a similar position from age to age — that is, on or near one percentile line or between the same two lines. Occasionally encountered sharp deviations or more gradual but continuing shifts from one percentile position to another call for further investigation as to their causes. In all cases, readings of measurements should be checked and care should be taken to secure the same position of the child accurately at all examinations. The following procedures were used in obtaining these norms and therefore are recommended:

Body Weight — The child is weighed without clothing except light undergarments.

Recumbent Length — The child lies relaxed on a firm surface parallel to a centimeter rule. The soles of the feet are held firmly against a fixed upright at the zero mark on the rule, and a movable square is brought firmly against the vertex. The head is held so that the eyes face the ceiling.

Height — The child's heels should be near together, and heels, buttocks and occiput should be against a firm vertical upright mounting the measuring stick. The eyes should be horizontal and approximately in the same plane as the external auditory canals. A right angle triangle or other movable device should be placed firmly on the head at right angles to the measuring stick and the measurement read after a satisfactory position has been adopted.

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Although the three-year-old boys are normal in height, the other ages are below the 10th percentile; all groupw are about at the 50th percentile in weight.

Intercorrelations among Whole Scores

Variables derived from all of the battery measures were included in a single factor analysis to determine their interrelationships. This analysis serves two purposes: first, to identify areas of redundancy in the battery, and second, to identify preliminary patterns of interactions between a child's environment and his performance.

The intercorrelations of the battery measures are presented in Table 62. The variables that each member in the matrix represent are listed in the key to the correlation and factor loading tables. Several broad patterns of interest seem to emerge:

- Most child performance measures show moderate positive correlations with each other, as commonly found in other studies examining the intercorrelations of achievement type measures.

- Performance on the PSI seems to relate moderately strongly to a very wide range of other variables--POCL, H/S HES checklists, SBI, age (height, weight), ETS Enumeration, DDST, 8-Block Task, and H/S HES parental warmth.

- The task orientation subscores of both the mother and tester rating forms (SBI and POCL) seem to relate moderately strongly to performance on the child tests (PSI, DDST, 8-Block Task).

- Neither the child's sex nor his food intake seem to relate in a consistent way with any of the other variables.

- Many of the measures show moderate relationships among their own subscores, such as H/S HES checklists, POCL, SBI, age (height, weight), ETS Enumeration, and DDST.

In addition to these, many individual correlations between isolated variables are of interest, such as the moderately strong relationship between age and POCL tester-referenced task orientation, (.38) or between the PSI score and the SBI hostility factor (-.35).

TABLE 62

CORRELATIONS BETWEEN SELECTED WHOLE SCORES[1]

		Sex	H/S HES Checklists				POCL		SBI			Food Intake					Age	W	H	ETS				PSI	DDST				8 Block	H/S HES		
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
H/S HES Checklists	2	11																														
	3	04	32																													
	4	-01	39	25																												
	5	08	04	17	09																											
POCL	6	12	04	08	-16	01																										
	7	02	04	04	03	-09	57																									
SBI	8	08	10	34	16	07	14	00																								
	9	07	-04	14	06	05	16	23	26																							
	10	-02	-13	-15	-11	-07	-23	-14	-25	-13																						
Food Intake	11	-23	09	16	00	12	-02	-01	10	06	00																					
	12	-06	09	00	07	27	-09	-07	02	08	-12	15																				
	13	01	02	18	08	13	12	13	12	06	-16	23	13																			
	14	-06	00	-08	-02	15	-08	-06	01	03	10	21	06	20																		
	15	06	04	09	02	10	15	10	05	-03	-01	05	05	28	19																	
Age	16	12	02	17	-23	00	38	20	20	09	-08	01	-01	00	-05	03																
Weight	17	-01	-03	05	-14	07	22	16	12	07	-07	07	12	00	-14	05	39															
Height	18	02	-03	02	-14	08	23	12	07	07	-02	06	13	12	03	03	35	54														
ETS	19	17	18	-08	-17	02	28	17	07	00	-19	11	03	-04	07	-04	24	04	-12													
	20	05	00	07	-21	04	20	-01	09	-08	-26	-07	-02	01	-01	07	30	25	12	38												
	21	-08	12	03	-01	-03	22	15	12	-06	-15	01	11	-08	-14	-08	23	07	-10	29	22											
	22	-01	24	18	08	-11	11	07	17	00	-13	00	-06	-07	-10	12	08	14	-03	17	09	32										
PSI	23	14	20	22	18	00	39	36	28	08	-35	-08	06	00	-20	-13	39	35	21	41	32	37	22									
DDST	24	20	10	27	-04	04	47	22	25	10	-14	00	-05	-14	-10	08	52	23	24	26	21	20	17	45								
	25	20	03	30	01	03	34	09	36	15	-21	-15	07	-03	-16	00	41	35	36	23	30	23	14	55	52							
	26	09	18	16	16	-02	32	23	29	04	-19	-03	15	11	-12	-03	32	30	23	27	22	35	23	63	36	53						
	27	11	19	28	00	18	24	12	27	12	-30	00	06	08	-10	10	25	09	05	33	26	14	01	21	24	26	12					
8-Blk.	28	04	10	02	10	06	36	26	25	05	-30	-12	06	12	00	00	21	28	11	22	23	28	20	55	26	33	47	08				
H/S HES	29	-12	-14	-12	-11	-02	-30	01	-15	-03	16	-05	10	15	-03	11	-11	09	07	-04	-15	-19	-15	-13	-29	-15	-14	-06	-09			
	30	-11	-29	-29	-21	-16	-16	-10	-30	-10	21	-10	-12	-03	07	03	-02	01	-06	-20	-08	-19	-19	-26	-13	-24	-26	-17	-18	07		
	31	00	-27	-33	-21	-24	-04	-02	-14	-05	16	-21	-16	-19	01	-03	06	00	02	-22	00	-14	-13	-21	-06	-19	-13	-14	-16	00	36	

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[1] See page 140 for key to subscores.

Rotated factor loadings for the whole scores are presented in Table 63. The scores loading on each factor are listed in Table 64. Ten factors were obtained, accounting for 64.4% of the variance. Factor I accounted for 9.7% of the variance and might be called the Physical-Motor factor, having with highest loadings age, height, weight, DDST Gross Motor, and DDST Fine Motor scores.

Factor II accounted for 8.2% of the variance and could be named Stimulating-Warm Home Environment, since the items loading highest include five of the seven H/S HES subscores: three checklists (total toys, total activities taught by mothers, total visits and trips), parental warmth, and parent-child playful interaction. The negative loadings for the last two are an artifact of the method for coding item responses, since parents scoring highest were coded 1 and parents who were lowest were coded 3.

Factor X, accounting for 8.2% of the variance, seems to be a Cognitive Performance factor. All of the highest loadings are negative, however, so a more appropriate name might be Cognitive Non-Performance. The 8-Block Task score loaded highest, and the DDST Language, the PSI Total, and the ETS Matching followed in that order.

Factor IV accounted for 7.6% of the variance and had the counting and pointing subscales of the ETS Enumeration as items with the highest loadings. The H/S HES Total Visits checklist also loaded moderately high on this factor, but in a negative direction. The DDST Personal-Social subscale loaded moderately high on this factor but loaded somewhat higher on Factor VI.

Factor V, accounting for 5.5% of the variance, might be named the Testing Cooperation factor. The two POCL subscores loaded highest, and the SBI Extraversion-Introversion subscore loaded moderately high.

Factor VI, with 6.1% of the variance, might be called the Non-Cooperation factor because the item with the highest positive loading was the SBI Hostility-Tolerance subscore. Two other items loaded moderately high on this factor in a negative direction--the SBI Task Orientation subscore and the DDST Personal-Social subscore.

Factor VII is a Food factor, accounting for 5.0% of the variance. Three of the five Food Intake subscores, Dairy products, Breads and Cereals, and Sweets and Pastries, had the highest loadings here.

TABLE 63

SELECTED WHOLE SCORE ROTATED FACTOR LOADINGS

ITEM[1]	FI	FII	FIII	FIV	FV	FVI	FVII	FVIII	FIX	FX	h^2
1	10	14	12	09	09	02	04	76	14	06	67
2	-03	73	-05	04	-02	05	09	07	07	-07	57
3	25	56	-09	-14	-02	-04	14	-04	09	16	70
4	-23	51	02	-05	-01	-10	01	10	06	-26	68
5	06	19	63	06	-10	-12	12	08	07	07	50
6	31	-01	-12	28	62	-10	16	09	21	-23	73
7	10	05	-16	07	82	04	12	00	-11	-22	81
8	20	18	03	-12	00	-60	03	-06	27	-17	57
9	07	-02	19	-20	53	-40	-17	-05	08	08	58
10	10	-03	-05	-18	-08	61	-06	00	03	40	60
11	06	23	25	07	10	01	11	-69	17	23	73
12	08	15	59	00	-11	03	-03	-19	-19	-20	51
13	-07	03	27	-11	17	-21	63	-13	-14	-14	63
14	-14	-12	41	00	00	22	42	-17	45	03	68
15	06	07	-07	03	00	00	81	06	-03	08	69
16	67	-03	-08	31	14	-09	02	01	16	-04	62
17	73	-08	03	02	00	-01	04	-14	-24	-22	68
18	74	-11	22	-16	06	05	10	-03	-11	-06	69
19	00	21	11	78	19	04	-07	04	07	-19	77
20	23	-14	-03	57	-26	-26	14	06	07	-26	65
21	04	21	-19	40	00	00	-20	-25	10	-45	57
22	10	38	-48	10	-10	00	12	-18	09	-26	55
23	37	27	-03	19	21	-15	-15	13	00	-62	76
24	57	17	-14	21	21	-11	-03	18	37	-07	67
25	61	16	02	09	00	-28	-11	23	09	-31	67
26	39	24	00	03	09	-03	-04	04	08	-64	66
27	12	19	06	45	10	-55	07	14	-09	10	63
28	14	03	05	06	14	-09	09	06	08	-76	66
29	00	-07	11	-05	00	14	14	-03	-78	11	70
30	-03	-57	-16	-07	-10	20	12	-01	00	15	45
31	03	-62	-26	-12	-04	13	-02	13	11	08	53
PCT.V	10	08	05	07	06	06	05	05	05	08	

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[1] See page 140 for key to items.

KEY TO

ITEMS ON WHOLE SCORE ROTATED FACTOR LOADINGS
(See Table 63)

MATRIX NO.	MEASURE	SUBSCALES
1	Sex	(M=1 F=2)
2	H/S HES	Total toys available
3	H/S HES	Total activities taught by mother
4	H/S HES	Total visits and trips
5	H/S HES	Total rules
6	POCL	Tester referenced items (1,4,6,8,10)
7	POCL	Tester non-referenced items (2,3,7,9)
8	SBI	Task orientation
9	SBI	Extraversion-Introversion
10	SBI	Hostility-Tolerance
11	Food-Int.	Meat
12	Food	Fruit-vegetables
13	Food	Dairy, eggs
14	Food	Bread, cereals
15	Food	Sweets, pastries
16	Age	
17	Weight	
18	Height	
19	ETS	Counting
20	ETS	Touching
21	ETS	Matching same number
22	ETS	Matching same order
23	PSI	Total
24	DDST	Gross motor
25	DDST	Fine motor
26	DDST	Language
27	DDST	Personal, social
28	8-Block	Child task total
29	H/S HES	Negative maternal interaction (Tester items 1, 2, 3, 4)
30	H/S HES	Parental warmth (items 2, 13, 16, 18)
31	H/S HES	Parent-child playful interaction (items 5, 9, 26, 27)

TABLE 64

SCORES LOADING ON FACTORS OF WHOLE SCORE FACTOR ANALYSIS
(See Table 63)

		Loading
FACTOR I (9.7%) "Physical-motor"		
18.	Height	.74
17.	Weight	.73
16.	Age	.67
25.	DDST-Fine Motor	.61
24.	DDST-Gross Motor	.57
FACTOR II (8.2%) "Stimulating-warm home environment"		
2.	H/S HES-Total toys available	.73
31.	H/S HES-Parent-child playful interaction	-.62
30.	H/S HES-Parental warmth	-.57
3.	H/S HES-Total activities taught by mother	.56
4.	H/S HES-Total visits and trips	.51
FACTOR III (5.4%)		
5.	H/S HES-Total rules	.63
12.	Food-Fruit, vegetables	.59
22.	ETS-Matching-same order	-.48
14.	Food-Bread, cereals	.41*
FACTOR IV (7.6%)		
19.	ETS-Counting	.78
20.	ETS-Touching	.57
27.	DDST-Personal social	.45*
21.	ETS-Matching-same number	.40*
FACTOR V (5.5%) "Testing cooperation"		
7.	POCL-Tester non-referenced	.82
6.	POCL-Tester referenced	.62
9.	SBI-Extraversion-introversion	.53
FACTOR VI (6.1%) "Non-cooperation"		
10.	SBI-Hostility-tolerance	.61
8.	SBI-Task Orientation	-.60
27.	DDST-Personal social	-.55*

(continued)

TABLE 64

SCORES LOADING ON FACTORS OF WHOLE SCORE FACTOR ANALYSIS

(continued)

		Loading
FACTOR VII (5.0%) "Food"		
15.	Food-Sweets, pastries	.81
13.	Food-Dairy, eggs	.63
14.	Food-Bread, cereals	.42*
FACTOR VIII (4.8%)		
1.	Sex	.76
11.	Food-Meat	-.69
FACTOR IX (4.6%)		
29.	H/S HES-Negative maternal interaction	-.78
14.	Food-Bread, cereals	.45*
FACTOR X (8.2%) "Cognitive performance"		
28.	8-block-Child task total	-.76
26.	DDST-Language	-.64
23.	PSI total	-.62
21.	ETS-Matching-same number	-.45*

Ten factors accounted for 64.4% of the total variance

---

*Item also has substantial loading on another factor.

Factors III, VIII, and IX, accounting for 5.8%, 4.8% and 4.6% of the variance respectively, do not seem to make a great deal of logical sense in terms of the content of items with the highest loadings. Factor III items with the highest loadings include H/S HES total household rules, Food Fruit and Vegetable total, ETS Matching Same Order subscore (negative loading), and Food Bread and Cereal total, in that order. Factor VIII items include child's sex and the Food Meat (loading negatively--boys eat more meat). Items on Factor IX include the H/S negative maternal interaction subscore and the Food Bread and Cereals total (loadings have opposite signs--children of strict parents eat less bread). These three factors do not seem very promising, particularly since the correlation matrix shows that correlations of the items involved both with themselves and other items tended to be very low. In addition, the ETS Matching-Same Order subscore was shown to have very low reliability in the item analysis section.

An attempt to clarify the patterns of scores was made by conducting a second factor analysis, leaving off scores that had low correlations with the rest of the battery. Specifically this included the child's sex and all Food subscores. In addition, the ETS subscores were excluded because of their poor internal characteristics as determined from the item analyses. The results of this second factor analysis are shown in Table 65. With 21 scores included in the factor analysis, seven factors accounted for 64.8% of the total variance. The scores that load on each of these factors are listed in Table 66. There are now fewer factors accounting for the same proportion of the total variance, and although a couple of the factors are difficult to interpret, the result is a set of logical factors from this battery that is consistent with the initial factor analysis.

Factor I (12.0% of the variance) might be called a "growth" factor since age, height and weight have the highest loadings. The DDST Fine Motor scale has its highest loading on this factor, suggesting its close relationship to the three growth items.

Factor II (10.5% of the variance) contains the same scores as the "Stimulating-Warm Home Environment" factor in the preceding analysis, though the loadings are altered somewhat.

The two POCL scores loaded in Factor III, accounting for 7.7% of the variance, suggesting a factor relating to tester ratings.

TABLE 65

WHOLE SCORE ROTATED FACTOR LOADINGS (REVISED)

Items[1]	FI	FII	FIII	FIV	FV	FVI	FVII	h^2
1	-04	-75	-10	-04	-16	00	-14	64
2	16	-59	05	-24	-30	14	31	65
3	-23	-68	08	15	12	-19	13	63
4	07	-08	11	-74	07	00	-05	58
5	17	08	-67	-13	-43	-26	03	78
6	09	-08	-88	08	02	-16	11	85
7	10	-16	24	-10	-25	-31	63	68
8	02	01	-27	-01	08	02	82	76
9	17	00	10	37	13	56	-21	57
10	58	09	-17	-02	-50	-04	07	65
11	76	09	-07	-06	08	-22	02	66
12	77	06	-07	-06	04	-03	02	61
13	36	-28	-22	03	-22	-65	05	74
14	37	-08	-18	-03	-67	-14	08	67
15	53	-13	08	-06	-38	-38	23	67
16	37	-28	-05	17	-22	-61	03	68
17	07	-08	-15	-54	-33	-01	23	50
18	15	-04	-16	-04	-04	-79	-02	69
19	27	04	-02	-02	71	16	02	63
20	-02	50	05	29	00	24	-16	43
21	-02	52	00	46	-11	17	01	54
PCT.V	12.0	10.5	7.7	6.9	9.7	11.2	6.9	

Seven factors accounted for 64.8% of the total variance.

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[1] See key to items on page 145.

KEY TO

ITEMS ON REVISED WHOLE SCORE FACTOR ANALYSIS
(See Table 65)

MATRIX NO.	MEASURE	SUBSCALES
1	H/S HES	Total toys available
2	H/S HES	Total activities taught by mother
3	H/S HES	Total visits and trips
4	H/S HES	Total rules
5	POCL	Tester referenced items
6	POCL	Tester non-referenced items
7	SBI	Task Orientation
8	SBI	Extraversion-introversion
9	SBI	Hostility-tolerance
10	Age	
11	Weight	
12	Height	
13	PSI	Total
14	DDST	Gross motor
15	DDST	Fine motor
16	DDST	Language
17	DDST	Personal social
18	8-Block	Child task total
19	H/S HES	Negative maternal interaction
20	H/S HES	Parental warmth
21	H/S HES	Parent-child playful interaction

TABLE 66

SCORES LOADING ON FACTORS OF REVISED WHOLE SCORE FACTOR ANALYSIS
(See Table 65)

		Loading
FACTOR I (12.0%)		
12.	Height	.77
11.	Weight	.76
10.	Age	.58
15.	DDST-Fine motor	.53
FACTOR II (10.5%)		
1.	H/S HES-Total toys available	-.75
3.	H/S HES-Total visits and trips	-.68
2.	H/S HES-Total activities taught by mother	-.59
21.	H/S HES-Parent-child playful interaction	.52*
20.	H/S HES-Parental warmth	.50
FACTOR III (7.7%)		
6.	POCL-Tester non-referenced items	-.88
5.	POCL-Tester referenced items	-.67
FACTOR IV (6.9%)		
4.	H/S HES-Total rules	-.74
17.	DDST-Personal social	-.54
21.	H/S HES-Parent-child playful interaction	.46*
FACTOR V (9.7%)		
19.	H/S HES-Negative maternal interaction	.71
14.	DDST-Gross motor	-.67
FACTOR VI (11.2%)		
18.	8-Block-Child task total	-.79
13.	PSI-Total	-.65
16.	DDST-Language	-.61
9.	SBI-Hostility-tolerance	.56

(continued)

TABLE 66

SCORES LOADING ON FACTORS OF REVISED WHOLE SCORE FACTOR ANALYSIS

(continued)

	Loading
FACTOR VII (6.9%)	
8. SBI-Extraversion-introversion	.82
7. SBI-Task orientation	.63

Seven factors accounted for 64.8% of the total variance.

---

*Item also has substantial loading on another factor.

The cognitive performance scores (8-Block, PSI, and DDST-Language) again loaded together, accounting for 11.2% of the variance as Factor VI. The SBI Hostility-Tolerance subscore also loaded on that factor, but in an opposite direction to the cognitive scores. As before this might be called a "cognitive Non-performance" factor, given the negative loadings of the performance scores.

Two of the SBI subtotals (Extraversion-Introversion and Task orientation) load on Factor VII, which accounts for 6.9% of the total variance. This factor seems to relate to social characteristics of the children, somewhat in contrast to Factor IV which mostly relates to socially influencing aspects of the environment. Factor IV, which accounts for 6,9% of the total variance, includes the H/S HES total rules, DDST Personal-Social subtotal, and the H/S HES Parent-Child playful interaction subtotal.

Factor V, accounting for 9.7% of the variance, contains two items (H/S HES Negative Maternal interaction and DDST Gross Motor) which do not appear logically related in any simple way.

Although most of the factors from the whole score factor analysis seem to be readily interpretable, it is still questionable to what extent the formation of factors was influenced by variance due to the type of measure, rather than the content of the measures. For example, Factors II, III, and VII contain only one instrument each. It may be possible for seven-category rating scales to load differently than three-category questionnaires, for example. Since there is only one measure each for most of the content areas, it would be difficult to answer this question with the current data.

Summary. In general, the cognitive performance of younger Home Start children as measured by the Preschool Inventory is above the test norms and higher than Head Start children. Older Home Start children tend to score equal to or below the norms and below Head Start children who had previous preschool experience, although they were about equal to Head Start children without any past preschool. Interpretation of this finding is complicated by the fact that regional differences are confounded with age differences. Home Start children's performance on the ETS Enumeration Test was at least equal to the Head Start sample at all ages, and was higher at the younger ages. Comparison of 8-Block Task scores for Home Start and Head Start children presents mixed results, with neither group having a clear advantage. Thus the cognitive measures indicate that Home Start data are not inconsistent with the hypothesis that the Home Start population is similar to the Head Start population.

The assessment of physical development using height and weight indicates that entering Home Start children were below normal in height (usually below the tenth percentile) but approximately normal in weight. There were some sex differences, however.

A factor analysis of selected whole scores produced seven factors, of which six appear to be readily interpretable. The six include physical growth, stimulating-warm home environment, test situation behavior, cognitive performance, social behavior, and social environmental influences. These preliminary estimates of the factor structure among whole scores suggest that the measurement battery is generally achieving its objective of measuring a range of child and environmental characteristics that might improve because of services provided by the Home Start Program. Two measures found to have questionable internal characteristics (ETS Enumeration and the Food Intake) were omitted from the analyses.

SUMMARY AND RECOMMENDATIONS

This section brings together all the item analysis summaries of individual measures presented in the previous section, along with those for the whole score comparisons with other studies. Following the summaries are some recommendations for improving the measures for Spring 1973.

Analysis Summaries

Preschool Inventory. This is a reliable test that shows promise for use in the Home Start evaluation. The majority of the items show an increased percentage passing with increasing age and moderate correlations with the total test score. Although factor analysis yields factors that are difficult to interpret, the results are not inconsistent with the contention that the test includes a relatively homogeneous set of items dealing with general achievement in areas important for success in school.

ETS Enumeration Test. Analyses indicate that on the Fall 1972 Home Start sample, the ETS Enumeration Test did not possess the psychometric properties expected. Factor analysis shows only two factors that correspond to scales on the test; items from the other two scales load on eight different factors that seem to represent a variety of concepts, but with strong evidence for the biasing influence of response position. The percent passing each item, alpha values for each scale, and the item-scale correlations support the finding of only two useable scales. Without the two matching scales, the ETS test would measure a very narrow range of skills--counting to 6 or 9 and touching dots.

Denver Developmental Screening Test. The modified version of the Denver Developmental Screening Test used here generally exhibits good psychometric properties. Item analysis demonstrates that most of the items show the desired age-related functions in terms of percent of children passing. In general, Home Start children pass items at older ages than children in the standardization sample, but other studies have suggested that the DDST norms are not representative of the populations served by Head Start and Home Start. Item intercorrelations, item-scale correlations, and alpha coefficients calculated for each scale support the division of items into four areas of child behavior. Factor analysis resulted in more than the four factors representing the four DDST scales. Nevertheless, items from the same scale do tend to cluster together.

Schaefer Behavior Inventory. This measure consists of three independent, reliable scales describing children's behavior in the areas of Task Orientation, Extraversion-Introversion, and Hostility-Tolerance. Factor analysis confirmed the existence of these three traits, with the qualification that two aspects of hostility may be involved in the ratings. A concern regarding the value of these ratings for program evaluation is the possible ceiling effects due to the generally high ratings (or low ratings in the case of Hostility).

Pupil Observation Checklist. The two scales derived from the POCL represent homogeneous, reliable scales. Although the intercorrelation matrix leads one to suspect the operation of an overall halo effect, two distinct factors emerged in the factor analyses.

High/Scope Home Environment Scale. This is the first time the H/S was used to collect data, and, as expected, much developmental work still needs to be completed before it can accomplish the objectives intended for it. Many of the item response distributions are skewed, and these items need to have the response categories redefined. Factor analyses indicated that some reliable and interpretable subscores can be constructed, but many of the items cannot yet be combined with other items in useful ways.

8-Block Task. Although most of the obtained 8-Block factor structure makes sense, there are still some problems of interpretation. The categorization of mother and child behavior into 40 variables may be producing distinctions that in reality are too fine-grained to hold up in future replications. Combining some of the categories according to factor outcomes may reduce this problem. Another problem is the highly skewed response distribution of most items--it was often the case that over half the responses were zero, with one or two extreme responses beyond 50. Also, scoring reliabilities were unacceptably low for some categories.

Parent Interview. The Parent Interview is evaluated primarily in terms of the apparent usefulness of the information obtained from the parents' responses. It did not seem appropriate or necessary to compute factor analyses or scale scores. Examination of the response distributions suggested that there was too much detail on some of the medical questions, and that instructions for completing the community agency questions may have been misunderstood by some people.

Food Intake Questionnaire. The computation of subscores according to the traditional food groups of meat, dairy products, breads and cereals, and fruits and vegetables proved to have little value, since the key nutrients such as protein were divided between two or more subscores. Moreover, the foods were recorded as frequencies rather than quantities, and there is no meaningful way to combine foods across categories. Correlations of the Food Intake Questionnaire with all other measures were essentially zero. It appears that the approach toward measuring food intake will have to be modified in a major way, since much more detail about the quantities of various foods of known nutritional value is necessary.

Comparisons to other studies. In general, the cognitive performance of younger Home Start children as measured by the Preschool Inventory is above the test norms and higher than Head Start children. Older Home Start children tend to score equal to or below the norms and below Head Start children who had previous preschool experience, although they were about equal to Head Start children without any past preschool. Interpretation of this finding is complicated by the fact that regional differences are confounded with age differences.

Home Start children's performance on the ETS Enumeration Test was at least equal to the Head Start sample at all ages, and was higher at the younger ages. Comparison of 8-Block Task scores for Home Start and Head Start children presents mixed results, with neither group having a clear advantage. Thus the cognitive measures indicate that Home Start data are not inconsistent with the hypothesis that the Home Start population is similar to the Head Start population.

The assessment of physical development using height and weight indicates that entering Home Start children were below normal in height (usually below the tenth percentile) but approximately normal in weight. There were some sex differences, however.

Battery factor analysis. A factor analysis of selected whole scores produced seven factors, of which six appear to be readily interpretable. The six include physical growth, stimulating-warm home environment, test situation behavior, cognitive performance, social behavior, and social environmental influences. These preliminary estimates of the factor structure among whole scores suggest that the measurement battery is generally achieving its objective of measuring a range of child and environmental characteristics that might improve because of services provided by the Home Start Program. Two measures found to have questionable internal characteristics (ETS Enumeraiion and the Food Intake) were omitted from the analyses.

Recommended changes in the measurement battery

The analyses have clearly identified a number of problems with the measures that need attention before using them to collect more Home Start data. The following list outlines the proposed changes for each measure for Spring 1973.

- The scoring system used with the Preschool Inventory will be simplified by eliminating four little-used categories.
- The ETS Enumeration Test will be dropped from the battery because of its higher than usual missing data rate, poor reliabilities and factor patterns for two subscores, difficult format for administration, and many negative comments from parents. However, because some indication of a child's growth in this conceptual area is highly desirable, Piagetian tests of conservation and other concepts will be substituted.
- Changes in the Denver Developmental Screening Test will mainly consist of format alterations to reduce errors in test administration, and simplifications in the item scoring codes to make them more compatible with machine scoring procedures.
- The Schaeffer Behavior Inventory will not be altered, but its positively biased response distribution necessitates close inspection of the changes obtained from fall to spring, in order to insure adequate room for child growth.
- Items 5 and 11 will be removed from the Pupil Observation Checklist, and the spring data will be used to see if the two-factor structure is replicated. The high correlation between the two factors may argue for dropping one or the other. As with the SBI, the positively biased response distribution needs further attention.
- The 8-Block Task will be administered in the same way, but alternative coding and scoring systems will be explored to reduce the number of items, improve reliability, and gain more information through the use of

sequential scoring of consecutive events. Transformations to reduce the skewed item responses will be explored.

- A more precise approach will be used to obtain information about children's food intake. The "24-hour recall" method will be pilot tested to see if community interviewers can be well enough trained to get useful estimates of the quantities of different food eaten by Home Start children.
- Items on the High/Scope Home Environment Scale will be extensively revised, to improve response distributions and simplify the factor structure. Many current items will be deleted. The total number of items will be increased to permit pruning the least useful items after comparing their empirical characteristics.
- The Parent Interview will be modified to simplify the medical information, obtain more demographic data, and to increase the information about parents reactions to the Home Start program.

After analyses of the revised measures are completed using Spring 1973 data, further revisions will be made based on the outcomes before beginning the actual evaluation phase of the project in Fall 1973. No other changes in the battery are scheduled after Fall 1973.

In conclusion. It is immediately obvious from the many instrument problems identified in this analysis that pilot testing the measurement battery was an exceptionally valuable phase of this evaluation. The alternative to such a procedure is selecting the measures, collecting pre- and posttreatment data, and then finding out after the experiment is all over that serious problems exist with certain measures. In that case it turns out to be too late to salvage the data, but in this evaluation there is time for yet another round of instrument revisions before the pretreatment data are collected.

Even when collection of the "for real" data begins, however, there will be problems with the instruments. This is so because the adequate development of psychological measures is an enormous undertaking, far beyond the resources of this project. In the Home Start evaluation project the most appropriate available measures are being given some patchwork repairs to make them acceptably useable, but there is no question that a full-scale test development effort could vastly improve the final measures. At this time the "repairs" to some instruments seem to mean the difference between measuring or not measuring important child or environmental characteristics which are vital for assessing Home Start's objectives. In addition, when one considers that the pilot phase not only permits measurement problems to be identified for correction, but also permits the training of field staff and the preliminary measurement of entering family characteristics, the value of the pilot phase of the national evaluation becomes all the more obvious. The planners of the evaluation design in the Office of Child Development deserve recognition for their foresight.

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APPENDIX

APPENDIX A: LETTER INFORMATION AND FAMILY ROSTERS

HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION
125 NORTH HURON STREET
YPSILANTI, MICHIGAN 48197

DAVID P. WEIKART, PH.D.
PRESIDENT

PHONE 313/485-2000

September 22, 1972

Dear

We are trying to find out if the Home Start program can be of any help to you and your children during the coming year. To do this, we would like to ask you some questions about your children and the things you do with them. We would also like to present some activities for your children to do. This information will be especially helpful to mothers and children who come into the Home Start program in the future, so by helping us now you will provide an important service to families who will follow you in the program.

Your home visitor will introduce you to the lady who will gather the information we need. She was hired from your area and given special training to do this job, and she has promised that she will not give information about your family to anyone but us. We will not give information to anyone except workers in your own Home Start program unless we ask you first. Altogether it will take about three hours to finish the whole task, and the community interviewer will spread it out over three different days so it will be easier. If it is necessary, you can ask to have it all done in one day. After the interviewer finishes and sends the information to us we will mail you $5.00 as thanks for your help.

Please mark the first box and sign your name if you are willing to help us in this important effort. If you do not wish to help us, mark the second box and sign your name at the bottom.

Thank you for letting the home visitor take the time to discuss this letter with you, and be sure that she gives you a copy to keep.

Sincerely,

Dennis J. Deloria

Dennis Deloria
Project Director

DD/ls

☐ I would like to help by providing information to the community interviewer who will visit me. I understand that even if I mark this box I will not have to answer any questions I don't want to.

Signed ______________________ Date __________

☐ I do not wish to provide any information to a community interviewer.

Signed ______________________ Date __________

Home Start Project (Site) ______________ ______ Date ______________

Home Start Director ______________________

Person Completing This Form ______________________

Please complete the following information for all families currently enrolled in your Home Start program. Be sure to bring this completed form to the Home Start Director's meeting (September 18, 1972) in Houston.

Family Name	Focal Child	Scheduled to leave after: Year one or two (circle)	Community, City or County where family lives	Name of Home Visitor assigned to this family
		1 [✓ 2]		
		1 2		
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APPENDIX A: FINAL ROSTER

Home Start Project (Site) ____________________ Date ____________________

Home Start Director ____________________

Person Completing This Form ____________________

The following families have been selected to participate in the October 1972 summative evaluation. Where information is missing below please complete it to the best of your ability. If there is some doubt about the accuracy of, say, a birthday, put down your best information with a question mark next to it.

Family Name (Home Vis.)	Mailing Address (with zip code)	Years in Prog.	Focal Child(ren)	Birthday Mo/Day/Yr	Siblings aged 3-6	Birthday Mo/Day/Yr	Handicapped or Non-English Speaking

APPENDIX B

HIGH/SCOPE EDUCATIONAL RESEARCH FOUNDATION

8 - Block Audio Score Form

Scoring Manual*

TRAINING PERIOD

Record the starting time of the TRAINING PERIOD by rewinding the tape all the way back to its starting position. At this point put the digit counter of the tape recorder on 000. Now wind the tape forward to the point at which the mother first tells the child that they are going to play a game, or in some way indicates that they are goint to play a game. Record the number now on the digit counter under TAPE RECORDER DIGITS on score form.

Statements such as "We are going to play a game" should be tallied under TALKS ABOUT by FUTURE TASK.

On the following pages there are examples of the various types of interactions between the mother and child and where they should be tallied.

MOTHER

There are three main categories under which mother-child interaction can be tallied. These include NON-PLACEMENT REQUESTS, PLACEMENT REQUESTS and TALKS ABOUT. There are two sub-categories under NON-PLACEMENT REQUESTS, those of TALKING and UNDERSTANDING. Under these general categories are the four classifications of HEIGHT, MARK, HEIGHT & MARK, and UNCLASSIFIED.

The information we are asking you to tally above the double line during TRAINING PERIOD is the more specific information. If you feel that something could be tallied both above and below the double line, tally it above the line only. For example:

> "See these tall blocks?" could be tallied under NON-PLACEMENT REQUESTS, TALKING by HEIGHT and also under DIRECT REQUEST. Please tally it under HEIGHT because this gives us more specific information.

Following are examples of HEIGHT, MARK, HEIGHT & MARK and UNCLASSIFIED as used in all categories.

HEIGHT	"Look at the baby blocks and the pappa blocks." "These blocks go with the other tall blocks." Any words the mother chooses to use that distinguish between different sizes are acceptable.
MARK	"These are flowers and these are cherries."

---

*Adapted from the scoring procedures used by the Stanford Research Institute in the evaluation of Planned Variation Head Start.

	"Do you know what these letters are?' Any words the mother chooses to use that distinguish between different letters are acceptable.
HEIGHT & MARK	"These are tall with X's." "The small O's go with the other small O's."
UNCLASSIFIED	Whenever you are unable to determine whether the mother is referring to HEIGHT and/or MARK, tally under UNCLASSIFIED. "These are all blocks." "This one is the same as those."

NON-PLACEMENT REQUESTS are those in which the mother asks the child for a response or for information other than asking the child to "put" or "place" a block, or where something "goes."

TALKING include requests by the mother to the child in which she asks for a specific HEIGHT, MARK and/or HEIGHT & MARK response from the child. For example:

REQUESTS TALKING by HEIGHT	"Are these big or little blocks?"
REQUESTS TALKING by MARK	"Johnny, what are these on top?"
REQUESTS TALKING by HEIGHT & MARK	"Say: these are tall X's."
REQUESTS TALKING by UNCLASSIFIED	"Why did you put that block with these ones?"

UNDERSTANDING include requests by the mother to the child in which she asks the child to do or say something. However, she is not requesting the child to talk specifically about HEIGHT, MARK or HEIGHT & MARK. Sentences using "show me," "point to," "find me," and those using "where" or "which" but do not include the words "put," "place" or "go" are included in this category. For example:

UNDERSTANDING by HEIGHT	"Where are the big ones?" "Is this one little."
UNDERSTANDING by MARK	"Find me an X." "Look at the top."
UNDERSTANDING by HEIGHT & MARK	"Point to the little O's."
UNDERSTANDING by UNCLASSIFIED	"Is this one in the right place?"

PLACEMENT REQUESTS include those requests in which the mother asks the child to "put" or "place" a block somewhere. For example:

PLACEMENT REQUEST by HEIGHT	"Put the tall blocks where they belong."
PLACEMENT REQUEST by MARK	"Place this X with the other X's."
PLACEMENT REQUEST by HEIGHT & MARK	"Which house do the short O's live in?"
PLACEMENT REQUEST by UNCLASSIFIED	"Where does this block go?"

TALKS ABOUT includes statements made by the mother to the child in which she is teaching the child about the blocks. For example:

TALKS ABOUT by FUTURE TASK	"We're going to play a game."
TALKS ABOUT by HEIGHT	"These tall blocks go with the other tall blocks."
TALKS ABOUT by MARK	"These are O's like cheerios."
TALKS ABOUT by HEIGHT & MARK	"These small blocks have O's on top."
TALKS ABOUT by UNCLASSIFIED	"This block doesn't match those blocks."

When the mother rewords a request for placement or talking, make one tally. For example:

PLACEMENT REQUESTS by HEIGHT	"Put this block...Put it over here with the tall ones."

Several requests tied together, however, are each to be tallied as separate requests. For example:

> "Put the little X's here, and the big O's here, and the big X's over there and the little O's over there." These would be treated as four separate PLACEMENT REQUESTS by HEIGHT & MARK.

The categories below the double line are defined below through the use of examples. Your most immediate, simplest understanding of the category is more than likely correct. When you think that something the mother or child has said or done could be tallied in more than one category, always tally it in the more specific category only. Never double tally except under CORRECTION. Examples for the categories below the double line are:

DIRECT REQUEST	"Look at the board." "Sit over here." "Can you see all right from there?"
RESPOND	"Yes, that's a tape recorder." An answer to "Is that chair high enough?" or "Can you see all right from there?" should be tallied under RESPOND.
COMMENT	"It's hot in here." "I can't remember what I'm supposed to do next." Comments or questions obviously made by the mother to the tester should be coded under COMMENT.
TASK IRRELEVANCY	"These blocks are red." "Point to the square blocks." Any comments or questions about the color or shape of blocks should be coded under TASK IRRELEVANCY.
PRAISE	"That's perfect!" "Good!" "You did that so quickly."
ACKNOWLEDGEMENT	"O.K." "That's fine." "That's right."
ENCOURAGE	"Keep trying. I know you can get it."

CORRECTION is when the mother attempts to change the child's behavior. The most often heard CORRECTION is simply "No" (usually following an incorrect placement by the child).

Four sub-categories have been placed underneath CORRECTION in order to give us more detailed information.

When you hear behavior modification, always tally it under CORRECTION and then, if it fits in one of the four sub-categories listed below, also tally it there.

Reason	"No, it goes here becuase it is little."
Question	"No, that isn't right. Don't you see those are all big?"

Firm	"STOP PLAYING WITH THE BLOCKS!" "NOW WATCH WHAT I AM DOING!"
Threaten, Demean	"If you don't sit up and listen I'm going to spank you." "I don't know why you can't do it right!"
BRIBE	"If you do it right we'll have some ice cream when we're through."

CHILD

There is one main category for the child above the double line. Statements in which the child specifically talks about HEIGHT and/or MARK should be tallied here. For example:

TALKS ABOUT by HEIGHT	"These are tall." "Big red block." "Baby block."
TALKS ABOUT by MARK	"Looks like a cheerio." "It's a circle." "Airplanes." "They're flowers."
TALKS ABOUT by HEIGHT & MARK	"Tall X." "Little flowers." "Big cheerios."

In order to score above the line on the child side of the score sheet the child must say words that distinguish HEIGHT and/or MARK.

Do not tally phrases like "same size," they're alike," under TALKS ABOUT; these remarks should be tallied below the line under RESPOND.

Most of the categories for the child below the double line are the same as for MOTHER. Two new categories are included for the child:

"I DON'T KNOW"	Child says "I don't know."
REFUSE, REJECT	Mother says to point to the big blocks, and child says "No." "I don't want to play with these blocks."

Record the number on the digit counter of the tape recorder as soon as the mother, tester or child indicates that they are finished TRAINING, under TAPE RECORDER DIGITS.

CHILD REQUESTED TO PLACE BLOCKS & SAY WHY

The child will first be given the SHORT O block to place and say why he put it there. The trainer will ask the child up to 4 questions in order to get the child to say "small O" (or any words meaning small and O). After each question write down any words the child uses meaning small and O. Mark a short line on the score form if the child does not answer or answers incorrectly.

The trainer will then repeat the above procedures for TALL X block. Write down any words the child uses meaning tall and X. Mark a short line if the child does not answer or answers incorrectly.

APPENDIX C

RESULTS OF THE INITIAL PARENT INTERVIEW

Leigh Butler

One task in the initial phase of the Home Start evaluation was to determine what parents expected from the program. Initial Parent Interview questionnaires were developed by the High/Scope Foundation and distributed to sites in order to ascertain parental expectations. The interviews were administered by program personnel, usually a Home Visitor. Data collection took place during the startup period of the program as only the first group of parents were to be interviewed, and no attempt was made to question parents who subsequently entered the program. A copy of the interview is presented in Figure 1.

To give the parent several opportunities to express their expectations for themselves and for their children, several questions were asked (Questions 3 and 4). In addition to determining expectations, the interview sought information about how parents first learned of Home Start and what they were told about the program. Comments on the program were obtained by asking parents what they would tell friends about Home Start. Tables 1 through 4 present the response frequencies to these categories of the interview.

Ten of the fifteen Home Start projects completed and returned interview forms.[1] The fact that Home Visitors conducted the interviews suggests that the parents' comments be interpreted with some caution. It was not clear in all cases whether parents actually completed the interviews themselves or whether Home Visitors answered questions for them. In instances where parents could not write or (did not) speak English, questionnaires were filled in by Home Visitors, and in the case of one program, all responses were typed. The influence of the Home Visitors on the reported responses in certainly a factor to be considered.

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[1] Arkansas, Kansas, Massachusetts, New York, North Carolina, Ohio, Tennessee, Texas, Utah, West Virginia.

FIGURE 1

Home Start Initial Parent Interview
High/Scope Educational Research Foundation
Ypsilanti, Michigan
5/20/72

Parent ______________________
Date ______________________
Interviewer ______________________
Home Start Center ______________________

TODAY I WANT TO ASK YOU A FEW QUESTIONS ABOUT HOW YOU FIRST GOT INTO HOME START. WE ARE TRYING TO GET SOME IDEA OF WHY PEOPLE WANT TO BE IN THE HOME START PROGRAM. YOUR OPINIONS ARE IMPORTANT TO US BECAUSE WE WANT TO MAKE THE PROGRAM WORK AS WELL AS POSSIBLE.

1. HOW DID YOU FIRST HEAR ABOUT HOME START?

(check answers that parent gives)

____ newspaper
____ friend
____ radio
____ home visitor
____ Head Start Center
____ Other ______________________________
(write in) ______________________________

2. WHAT DID YOU LEARN ABOUT HOME START THEN?

____
____
____
____
____

3. WHY DID YOU WANT TO BE IN HOME START?

____
____
____
____
____

3(a). WHAT (ELSE) DO YOU WANT YOUR CHILD TO GET OUT OF HOME START?

____

____

____

____

3(b). WHAT (ELSE) DO YOU, PERSONALLY, WANT TO GET OUT OF HOME START?

____

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____

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4. I KNOW IT'S SOMETIMES HARD TO REMEMBER WHY WE DO THINGS, BUT CAN YOU THINK OF ANY OTHER REASONS WHY YOU WANTED TO BE IN HOME START?

____

____

____

____

5. IF YOU WERE GOING TO TELL YOUR FRIENDS ABOUT HOME START, WHAT WOULD YOU SAY?

____

____

____

____

THANK YOU VERY MUCH FOR ANSWERING MY QUESTIONS. YOU'VE BEEN VERY HELPFUL.

(Return to Home Start Director)

The first question of the interview asked: "How did you first hear about Home Start?" The majority of Home Start parents (66%) first learned of the program from a Home Visitor, since recruitment for many sites was conducted on a door-to-door basis by Home Visitors. Many parents were informed of the program by friends or relatives, especially in programs, such as New York, which hold regular parent meetings. Miscellaneous sources such as Head Start Centers, community service agencies, local schools and media services accounted for numerous enrollments. Table 1 shows a breakdown of responses to question one.

Question two asked: "What were you told about Home Start then?" The frequencies in Table 2 indicate that a variety of Home Start components were initially explained to parents. They were usually told of home visits conducted twice weekly to work with three- to five-year-old children. It appears that emphasis was placed on the program's educational element, especially in preparing the child for formal schooling, and parents were frequently told that they would become participants in the educational process themselves.

Many parents expressed an interest in similiarities between Home Start and Head Start; it is interesting to note that several parents replied specifically that they were unable to transport the child away from home and therefore derived particular benefit from Home Start services. Parents were also informed of medical, nutritional and social services available for the entire family. In Tennessee a large number of parents reacted favorably to the program's "van school on wheels" and to educational television programs integrated into that project. The majority of parents in New York were made aware of frequent parent meetings conducted on a regular basis by local program officials. Table 2 presents the response frequencies for the second question.

Item 3 was designed to elicit various types of parental expectations and Table 3 indicates responses to "Why did you want to be in Home Start?", "What (else) do you want your child to get out of Home Start?", and finally, "I know it's sometimes hard to remember why we do things, but can you think of any other reasons why you wanted to be in Home Start?"

The majority of parental expectations were education-related. Many expressed a desire to provide their children with a headstart in school to overcome disadvantages of a low-income background, especially where no Head Start or kindergarten was available. A West Virginia father expressed this concern:

> "I want my children under school age to have a chance to learn because I live up in a hollow and they can't walk out because it's too far for them to go."

A mother in Massachusetts expressed her expectation this way:

> "Because I believe children learn more the first five years of their life than they ever do. Language, walk, talk, count, colors, how to eat, and anything that can help them learn interests me. I know education should start now, before they reach school."

And a parent in the ARVAC program responded with a similar concern:

> "(To have) a good start in life... you must have a good education...To know that my child will get as good a chance as any other. That they can start school with a little more knowledge than they would have had."

Parents commonly expressed a desire to have a role in the education of their children, to learn to understand and to better relate to them. The following quotes are samples of their desire:

> "A chance to enjoy, and at the same time to help in the teaching of the boys. To get new ideas, to keep the boys busy."

> "A better idea of how to help my children learn through everyday experiences. To teach then what's good and what's bad. Teach them right from wrong."

> "I thought it would...teach me the best ways to work with my daughter in helping her to learn...The satisfaction of knowing that in this way I have helped my daughter to gain more knowledge than she would if I hadn't enrolled her in Home Start."

Numerous parents expected Home Start to provide the opportunity for their children to meet new people, to bring about improved social amenities, as well as to provide themselves opportunities for socializing. For example, a mother in Arkansas said she wanted to be in Home Start:

> "To give my child the opportunity other children have...She is a very shy child. Hopefully this will prepare her to go to school and mix with other children...This also will help me to be with other mothers (at) parent meetings."

Expectations ranged over a wide variety of additional topics. Most frequently noted was availability or knowledge of medical and social services provided by Home Start. Some parents noted particular problems, such as speech impediments, which required special attention, and several parents who could not speak English desired that their children overcome this handicap. Discipline was a problem with which some parents hoped outside assistance would be provided. The frequencies of these responses are reported in Table 3.

The last question attempted to obtain information about parental opinions of Home Start. Table 4 categorizes responses. Parents were asked "If you were going to tell your friends about Home Start, what would you say?" Favorable reaction to the program was evidenced by positive parental comments. The opinion most commonly expressed was a general statement in favor of the program:

> "I would tell them how it is helping my children. I think it's a good program."

Educational benefits were noted in particular, together with comments about developing new responsiveness to their child's needs:

> "That it is a program that helps parents as well as the children; different toys and puzzles and etc. are brought each week."

Both mothers and children purportedly welcomed communication with Home Visitors and expressed eagerness at the departure from their daily routine:

> "My kids look forward to seeing their 'teacher'...each week. Even the youngest, (a) one-year-old girl, loves to see Mrs. Davisson coming. She plays right along with the other two. And it's very pleasant knowing that I won't be watching all three all week, that I can always look forward to having a break for that period of time."

Whereas a few parents felt comments on Home Start were premature, the consensus was that the program was long-overdue and greatly needed. As a Massachusetts mother put it:

> "I would tell them it is a worthwhile program and gives the children a chance, or access to things that otherwise they wouldn't be able to have."

TABLE I
RESPONSES TO HOME START INITIAL PARENT INTERVIEW ITEM 1

Site	Media	Home Visitor	Other Home Start Personnel	Friend, Relative	Community Service Agency	Local School	Head Start Program	Other	Total of Persons Responding to Question One
Dardanelle, Arkansas	2	74	0	3	0	0	4	0	78
Wichita, Kansas	4	26	2	14	12	5	4	1	66
Gloucester, Massachusetts	4	6	0	12	11	5	1	0	39
Binghamton, New York	1	36	1	24	7	0	1	2	67
Franklin, North Carolina	3	43	1	4	2	1	0	2	58
Cleveland, Ohio	0	35	0	2	0	0	0	0	38
Harrogate, Tennessee	4	51	0	15	0	3	0	1	72
Houston, Texas	0	24	0	7	4	0	2	2	34
Millville, Utah	1	3	1	2	2	0	4	0	12
Parkersburg, West Virginia	2	71	1	16	3	0	4	3	92
Total	31	369	6	99	41	14	20	11	556

[1] Total responses are greater than total N because parents learned of Home Start from more than one source.

TABLE 2

RESPONSES TO INITIAL PARENT INTERVIEW ITEM 2

Site	Regarding Child			Regarding Parent		Other					TOTAL N
	Home visitor comes to home to teach	Prepares child for school	Field trips	Teaches parents to help their children	Parent meetings	Educational benefits	Medical benefits	Nutritional benefits	Social services benefits	Other	
Dardanelle, Arkansas	43	13	1	21	8	6	2	0	1	7	79
Wichita, Kansas	28	11	3	9	0	16	2	2	1	3	66
Gloucester, Massachusetts	25	0	0	8	0	9	0	0	1	5	39
Binghamton, New York	2	7	1	12	29	17	2	2	6	0	67
Franklin, North Carolina	29	2	0	4	0	1	5	0	0	0	58
Cleveland, Ohio	19	11	0	21	0	3	0	0	0	0	38
Harrogate, Tennessee	23	7	0	4	0	10	15	0	3	**	72
Houston, Texas	16	3	0	15	0	8	11	0	10	1	34
Millville, Utah	7	0	2	2	0	3	0	0	0	0	12
Parkersburg, West Virginia	23	18	2	2	0	32	8	4	2	2	89
TOTAL[1]	215	72	9	94	37	105	45	8	24	48	554

** Other categories exclusive to Tennessee include: (a) "Van" School on Wheels 19
(b) TV programs (educational). 11

[1] Total responses are greater than the total N because parents could give more than one answer.

TABLE 3
RESPONSES TO INITIAL PARENT INTERVIEW ITEMS 3 AND 4

	Expectations for Child							Expectations for Parent					Expectations for Family				
Site	Prepares child for school	Educational Benefits	Helps child learn English	Teach child social behavior	Field trips	Make life easier for child	Correct child's problem	Parent wants to learn to be educator	Teach parents to better relate to their children	Experience of watching children learn	Helps discipline children	Group meetings	Opportunity to meet people outside family	Medical benefits	Nutritional benefits	Social services benefits	TOTAL N
Dardanelle, Arkansas	50	54	0	23	3	5	1	49	20	2	0	3	22	27	4	5	79
Wichita, Kansas	32	34	3	11	2	5	4	32	21	2	2	0	10	4	0	2	66
Gloucester, Massachusetts	18	27	2	7	0	3	3	16	8	5	1	0	13	0	1	1	38
Binghamton, New York	11	21	0	24	1	1	2	10	10	0	2	44	28	4	2	6	67
Franklin, North Carolina	21	26	0	8	1	3	1	23	9	0	0	0	9	20	0	0	58
Cleveland, Ohio	21	29	0	10	0	4	1	28	16	1	1	0	6	2	2	2	38
Harrogate, Tennessee	31	32	0	7	0	2	0	5	2	1	0	0	21	1	0	2	72
Houston, Texas	15	26	4	5	1	1	2	14	6	0	0	0	8	11	1	5	34
Millville, Utah	3	6	1	3	1	1	0	7	3	1	0	0	4	0	1	0	12
Parkersburg, West Virginia	45	60	0	35	1	0	2	25	21	5	0	0	34	5	2	0	91
TOTAL[1]	247	315	10	149	10	25	16	209	116	17	6	47	155	74	13	23	555

[1] Total responses are greater than the Total N because parents could give more than one expectation.

TABLE 4

RESPONSES TO HOME START INITIAL PARENT INTERVIEW ITEM 5

Site	General Favorable Comments						Comments About Specific Program Characteristics							Other	TOTAL N
	Good Program in General	Educationally Beneficial	Good Opportunity to Give Child Headstart	Program is Interesting for Child	Great Help to Parents and/or Child	Mother & Child Enjoyed Home Visitor	Positive Comments About Home Teaching	Teaches Parents to Relate to Child	Parent Meetings	Field Trips	Opportunity to Meet Other Children	Prepares Child for School	Factual Information About Program		
Dardanelle, Arkansas	22	13	1	7	14	18	0	7	0	0	1	8	10	7	79
Wichita, Kansas	20	8	4	7	11	2	2	7	2	2	2	11	0	2	64
Gloucester, Massachusetts	12	14	0	4	5	6	4	4	0	0	0	3	0	3	37
Binghamton, New York	17	7	0	2	21	1	0	3	19	0	3	2	0	0	64
Franklin, North Carolina	39	10	0	5	5	7	0	0	0	0	0	0	3	0	55
Cleveland, Ohio	13	6	2	1	9	3	6	2	0	0	0	3	0	2	37
Harrogate, Tennessee	48	12	0	0	3	4	0	0	0	0	3	8	0	1	72
Houston, Texas	8	20	0	0	6	2	5	3	0	0	0	1	5	0	34
Millville, Utah	2	5	1	0	2	0	0	3	0	0	0	1	0	1	11
Parkersburg, West Virginia	22	37	0	1	27	8	2	3	0	0	0	11	11	1	88
Total[1]	203	132	8	27	103	51	19	32	21	2	9	48	29	17	541

[1] Total responses are greater than total N because parents could make more than one comment about the program.

II. FIELD OPERATIONS

A. Introduction

The most distinctive and essential features of the field operations design for the first year of the summative evaluation were:

- the recruitment of local personnel indigenous to the nine summative sites for interviewing Home Start parents and testing children,
- the training of local personnel in the administration of the test battery and in general field procedures to be followed for the summative evaluation,
- on-site performance review and monitoring of local personnel by Abt and High/Scope field staff responsible for operations at a particular site.
- and Abt central office control of all field operation activities to insure that identical field procedures were being followed in all nine sites and that data was being gathered on a timely basis.

Each of the features of the field operations are described in detail in subsequent sections of this section. To give the reader an overview of the entire field operations, an evaluation of the process and the test data gathered during the Fall is also included here, together with recommendations for Year II.

END